

# Polygraph

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EXCERPTS FROM THE ADDRESS OF  
U.S. SENATOR ROBERT P. GRIFFIN

Before the  
American Polygraph Association  
Traverse City, Michigan  
August 7, 1975

It's a coincidence, I'm sure - but I find it mighty interesting that on the final day of your national meetings here - the biggest news story of the day in Michigan focuses on the polygraph.

As you probably noticed, the morning network news carried film of Hoffa's natural son, James P., calling on Hoffa's adopted son, Chuckie O'Brien, to submit to a polygraph examination.

Almost as though he had been coached, young Jimmy carefully avoided use of the term "lie detector" - and correctly referred to the "polygraph" and its availability to help verify the truth.

Now, even if your Association's P.R. man didn't plan it that way - I rather suspect that this public statement - coming as it does from the son of such a well known labor leader - just may do more to build credibility for the polygraph and its operators than all the speeches you've heard, and certainly the one you are about to hear.

I am honored by your invitation and privileged to have the opportunity to welcome you to "God's Country" - as President Ford described it when he was here several weeks ago.

It is particularly appropriate that the theme for your 1975 American Polygraph Association seminar and annual meeting is, "Ready for the Defense."

Because, like used car salesmen and politicians, the science of polygraph examination is under attack.

It's under attack from labor unions, who say that such examinations in connection with employment are degrading and demeaning to their members, or potential members.

It's under attack in Congress, where some Senators and Representatives would like to clamp a stranglehold on polygraph operators, choosing to recognize only the shortcomings, and ignoring the high rate of success.

And, because of the peculiar tenor of the times in which we live - the Watergate legacy - polygraph examination is in danger of becoming identified in the public mind as one more part of some sort of vague conspiracy which threatens ever more sweeping interventions in the private lives of United States citizens.

As I'm sure you know, former Senator Sam Ervin, who is highly respected as a constitutional authority, has referred to the polygraph as "one of the most pernicious of all the pseudo-scientific instruments of the 20th Century."

Yet, the Federal Court for the District of Columbia, after considering exhaustive testimony and exhibits, concluded (and I quote):

"The polygraph is an effective instrument for detecting deception."

What is the real picture?

Is the polygraph, as has been said, first cousin to the Medieval rack and screw - an inhuman instrument for extracting confessions of guilt?

Or is it, as the American Polygraph Association believes, a scientific instrument for measuring human physiological response, which, when properly used by a well-trained operator recognizing its limitations - is a valuable aid in separating falsehood from fact, or from that which is perceived to be fact by the subject under examination?

As you know so well, the answers to such questions are far from settled in the courts of either Federal or State jurisdiction.

But judicial answers are developing in the course of the painstaking appellate process. Answers are coming because progress over the last decade has produced a situation where, in the words of Federal Judge Charles W. Joiner, of the Eastern Michigan District (and I quote):

"The state of the science (referring to polygraph operation) is such that the opinions of experts will assist the trier of fact to understand the evidence."

As an elected official of our State, I am pleased to find it most appropriate that you meet here in Michigan to mark the 40th anniversary of the Michigan State Police Polygraph Section. During all that time, they have borne the burden of being referred to as "lie detectors", rather than "truth seekers" - when, in fact, all they really wanted was to be known as polygraph operators - no more, no less.

It is also just 10 years since the U.S. House of Representatives Committee on Government Operations issued a report highly critical of Polygraph examinations.

Some may recall that, as a member of the Committee, I refused to join in the views of the majority.

I said in separate views that,

"Although the subcommittee's hearings pointed up some questions concerning the use of the polygraph, and revealed deficiencies in the qualifications of some polygraph operators, the record then did not justify the general tenor of the report, which tended to discredit the polygraph and its use."

And now it can be said with even more emphasis that the record compiled in the decade since then still fails to discredit the polygraph examination as a valuable and important technique to assist in verifying the truth.

It must also be said however that, while the technology and operator proficiency have improved greatly since 1965, legitimate questions are still raised with respect to the appropriate role of the polygraph in government, in criminal investigation, and in the private sector.

Indeed, the fact that the polygraph is used in three different areas - in government, in criminal investigations, and in the private sector - seems to be a part of the problem. Those who are critical of the use of the polygraph in one area tend to target their opposition on the profession as a whole - instead of zeroing in on what they perceive as abuses in a particular area.

This is true now, and it has been true since 1965.

It was interesting then - and it is interesting now - to note that the very critical House Committee report of ten years ago, to which I referred previously, reached a conclusion that the polygraph should be prohibited (and I quote):

"In all but the most serious national security and criminal cases."

What an interesting and implicit recognition of the validity and effectiveness of the polygraph examination when properly used!

I rather suspect that you are looking to me this evening for some kind of a report or evaluation of the national - and particularly the Washington - attitude today. I can only say that now, as in the past, the attitude - the feeling - is mixed and confusing.

Without doubt, there is a strong concern that any use of the polygraph should not erode or interfere with legitimate rights of the individual.

Perhaps that helps to account for the fact that the most striking success stories have come as a result of voluntary submission to polygraph examination - situations where an individual has used the technique to establish his innocence - where circumstantial evidence clearly pointed in the other direction.

Although it is difficult to be sure, I don't think the majority in Congress today would go as far as Senator Ervin did in denouncing the polygraph completely. But I suspect there is a majority that would vote for some severe wing-clipping, as I am sure you know there are pending bills which would create some unemployment in your profession in the private sector - by prohibiting use of the polygraph in any employment situation. Such bills have been introduced by Senator Bayh of Indiana, and by Representative Koch, of New York.

Some of the large national unions are ardent backers of this legislation - even though many union members have benefited by being cleared of charges of wrongdoing through use of the polygraph.

Needless to say, there is also the predictable chorus of self-proclaimed civil libertarians who strongly support such legislation.

There are many in and out of Congress who view with deep concern the proliferation of polygraph use for pre-employment screening and for periodic examination during employment.

I find it interesting and confusing that proponents and opponents of the polygraph cannot be neatly classified in one camp or another. Both can be found in the ranks of employers and employees; lawyers and lay people; Democrats and Republicans; and even among those who call themselves "conservative" or "liberal."

What does this diffusion and confusion of support and opposition mean?

For one thing, I'm afraid it may mean that the polygraph is in danger of becoming a symbol - an ogre or a straw man - in ideological struggles that divide people on other issues that are more than the interpretation of physiological reaction as indicators of truth.

In the city of Washington, pickets took to the streets recently to protest employment-related polygraph examinations.

One Washington newspaper carried this headline:

"Even Massage Parlors Now Use Lie Detectors."

In a companion story, a subject, who perceives himself as having been wronged by the machine, cites a case at least a dozen years old to suggest that malpractice is widespread in the polygraph field in Washington today.

These and other developments, it seems to me, are clear warning signals that public opinion manipulation is being used in the challenge to responsible polygraph.

What does all this mean for the American Polygraph Association?

I think it means that, as you continue your constant efforts toward ever more precise and reliable scientific validation of the principles of responsible polygraphy, you must also wage an aggressive and effective battle for public understanding. You have a chance to win that battle only if you candidly recognize the valid limitations and shortcomings in your field.

You are being, and will continue to be charged with advocacy of machine-determined veracity - when in fact that has never been your claim.

I believe it is necessary for you to confront head-on the effort to make polygraph examinations a symbol of social conflict. You must meet it with vigorous dissemination of the truth about polygraphy - including its limitations.

But keep in mind that even the most effective public education program is not likely to head-off all legislation or additional regulation of one sort or another.

It's my understanding that 19 states now screen and license polygraph operators, and at last count 13 states have laws bearing in one way or another upon the circumstances for administering of polygraph examinations.

I'm not bold enough to predict what legislation - if any - will be enacted at either the federal level or by the various states.

Perhaps there are some clues, however, as to the areas which such legislation may touch.

The Koch and Bayh bills which, for all practical purposes, would eliminate job-related polygraph examinations, have gone nowhere yet. They remain in committee. However, the Koch bill has been picking up sponsors in the House, and there is some talk of scheduling hearings on the Bayh bill.

The Bayh bill is in the Senate Judiciary Committee. And, as you may recall, a staff study by that Committee's Subcommittee on Constitutional Rights - came out last fall. It was entitled "Privacy, Polygraph, and Employment."

I won't attempt to summarize that 18-page document, but suffice it to say that it was written in very negative tones.

It recites that 6,882 polygraph tests in connection with federal civil service employment were administered between 1956 and 1973 - most of them by the Defense Department. It also notes that while complete statistics do not exist, polygraph examinations in private employment are estimated at 200,000 to 300,000 a year.

The conclusion of the report states that:

"The Congress should take legislative steps to prevent Federal agencies as well as the private sector from requiring, requesting or persuading any employee or applicant for employment to take any polygraph test."

Perhaps the scope of the difficulty was underscored in the 1973 report of the National Advisory Commission on Criminal Justice Standards and Goals. In its 286-page volume entitled "Criminal Justice System," the Commission makes only this one reference to the value of your profession:

"The citizen's right of privacy is vulnerable this age of electronic eavesdropping, recorded lie detector testings, tapped telephones, telescopic lenses, long-distance listening devices, photographic coverages and various other techniques that can effectively deprive a citizen of his privacy."

Isn't that just great to be lumped together with such nice company!

If the outlook seems bleak in Congress and the Commissions, perhaps there is at least hope in the courts where the function you perform should be better understood.

I referred earlier to a 1972 decision by Judge Joiner. In that case, he allowed consideration of polygraph results at the request of the defendant, after certain verifying tests had been ordered by the Court. Although not everything he said about polygraph was totally positive, in his memorandum opinion Judge Joiner pointed out that:

"It seems likely that fewer cases will reach trial once the use of the polygraph is fully developed by the prosecution and the defense. The validity of polygraph opinions is clearly established, and when a method has been developed to assure the check on the defendant's clearance by the examiners, it is likely that more cases will be dismissed. In the same way, when procedures have been opened to permit government use of the polygraph opinion under the checks suggested, it appears that the probability of pleas of guilty will be increased. In either case, the result is likely to be a benefit both to the innocent and to society - and will eliminate many cases from the Courts."

As you await further developments on the legislative front - state and federal - it is clear that the American Polygraph Association has an important and challenging role to play.

It is most essential - not only for you but for the country - that the public at large gain more understanding about the significant contribution that your profession is capable of making. The people must realize that you do not have, or claim to have, any magic machine that automatically determines guilt or innocence.

They must understand that certain physiological reactions to stress can be measured, and that a trained and competent operator, working carefully, can interpret what those responses mean.

It must be emphasized over and over again that a polygraph machine does not make decisions - that the results of a polygraph examination are an aid - a very valuable aid - to decision-makers, whether they are on a jury, in the role of employers, or in the Congress of the United States.

I am convinced that the effective and appropriate use of the polygraph can come about only if:

- One, the operator meets his obligation to adhere to the highest of standards;
- Two, if the subject and the party for whom the testing is done know the meaning and limitations of the information produced, and,
- Three, if the public and the media can be convinced of the integrity and potential of this promising technique.

When and if this comes about, the politicians finally will put aside the temptation to "demagogue the issue" - a temptation which until now has proved overpowering.

That is the way, as I see it - by earning the respect and understanding of the public at large - that you can realize and fulfill the potential of your fine and honorable profession.

I salute you and wish you well not for your sake at all - but for the sake of the nation and its future.

Thank you.

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## REVIEW OF POLYGRAPH CHARTS OF NON-DECEPTIVE SUBJECTS

By

N. E. Robbins and W. J. Penley

A study of polygraph procedures was made at Washington, D.C. between July 8 and July 16, 1975, by Postal Inspectors N. E. Robbins and W. J. Penley of the Eastern and Southern Regions, respectively.

This study is a follow-up of the study made on deceptive polygraph subjects and reported February 11, 1974. The study on deceptive subjects was presented by Inspector Penley at the annual seminar of the American Polygraph Association in Seattle, Washington, in August 1974, and was printed in the September 1974 edition of Polygraph, the official publication of the American Polygraph Association.

The current study dealt with polygraph examinations given between January 1974 and June 1975 in criminal cases involving Postal Inspection Service investigations.

Selected for the study was a total of 140 polygraph examinations. These examinations were confirmed as no deception indicated (NDI), and all of the examinations had been called NDI by the examiner who ran the case before confirmation was known. In other words, the case had not been resolved at the time the examiner made his decision. All of the examinations had been reviewed by the Quality Control Review Officer.

All of the examinations were confirmed in one or more of the following ways:

- a. Confession obtained from another person.
- b. Conviction in court of another person through use of fingerprint identification, handwriting evidence, and testimony of others.
- c. Where it was later found that a loss did not exist and no crime had been committed.

The 140 polygraph examinations consisted of 568 separate charts which, in most instances, included a stimulation chart. Generally, the stimulation



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The 140 polygraph examinations consisted of 568 separate charts which, in most instances, included a stimulation chart. Generally, the stimulation

chart was run immediately after the first relevant test chart. An average of four test charts were made on each examination. None of these examinations included less than two charts containing questions relevant to the matter under investigation. None of the 140 persons tested required re-examination.

Stoelting polygraph instruments were used for each examination. Parameters measuring respiration (pneumograph tracing), blood pressure-pulse rate changes (cardio tracing), and galvanic skin response (GSR), were used in the test procedures.

Questioning techniques used during the examinations were the Backster Zone of Comparison (ZOC), and the Reid Mixed Question Test (MGQT). In addition to charts run using one or both of these techniques, Peak of Tension (POT) charts were run in three of the examinations.

Particular attention was given to several different areas of the test results as reflect in the polygraph charts themselves. Findings in each of these areas will be discussed under the appropriate heading.

#### Prominent Reacting Component

Blood pressure-Pulse (Cardio)	61 or 43.6%
Respiration (Pneumo)	56 or 40.0%
Galvanic Skin Response (GSR)	23 or 16.4%
	<hr/>
	140 100%

The prominent reacting component showed a greater response to control questions than to relevant questions on the test charts. We examined all the test charts and found that the cardio tracing was the best indicator of deception on control questions over relevant questions in 61 of the 140 tests. Pneumo tracings indicated better responses to controls over relevant questions in 56 of the tests and GSR was the better indicator in the remaining 23 tests.

In 128 (91%) of the 140 tests, the predominant reacting component was supported by responses in both other components. At times, however, some of the supporting changes were slight. In 12 of the tests, there was little or no support in the remaining two components.

#### Attempt by the Subject to Distort the Charts

None of the 140 persons examined attempted to distort test charts on either the relevant questions or the stimulation tests.

#### Relief

In practically all test charts, relief followed responses. Indications of relief were seen in a drop in the cardio tracing and the GSR recording and as an increase in amplitude in the pneumo tracing.

### Cardio Changes

In 127 (91%) of the 140 tests, there was an increase followed by a decrease shortly thereafter in the blood pressure at the point of deception on the control questions. In 14 (10%) of the 140 tests, there was a notable increase in blood pressure which was prolonged. In most instances of such an increase, the tracing did not return to the base line until after the next question was asked.

In 16 (11%) of the 140 tests a change in position of the diacrotic notch was noted. A constriction of amplitude was noted in most deceptive responses, sometimes causing the notch to disappear. Some of the tests indicate two or more of these changes in the same chart.

### Pulse Rate Change

In 6 (4%) of the 140 tests, pulse rate changes were noted at the point of deception on control questions.

### Pneumo Responses

Suppression of respiration amplitude, followed by relief, was found in 133 (95%) of the 140 tests.

A change in base line of the pneumograph tracing was noted in 29 (20.8%) of the 140 tests.

A change in inhalation-exhalation ratio (I & E ratio) was noted in 9 (6.4%) of the 140 tests.

Holding of the breath (apnea) was noticed in 6 tests (4.3%) of the total examined.

On four of the tests the pneumograph tracing could not be read on any of the charts. Some of the tests reflect two or more of these changes in the same chart.

### Galvanic Skin Response

In 95 (68%) of the 140 tests, good or excellent GSR responses were noticeable on some charts in the test series. In 40 (28%) of the 140 tests, some GSR response could be noted. In only 5 (4%) of the tests was there no GSR response noted in any of the test charts.

### Best Chart

Many of the tests indicated good responses on all test charts. Each test was examined to select the best chart indicative of responses to control questions that would indicate the subject to be non-deceptive to relevant issues. We found as follows:

First Chart	48 tests or 34.3%
Second Chart	53 tests or 37.8%
Third Chart	39 tests or 27.9%
	<hr/>
	140                  100%

On 33 (23.6%) of the 140 cases, only two relevant charts were run in addition to the stimulation chart.

#### Stimulation Test Reaction

In 137 of the 140 tests, stimulation charts were made by the examiner. The stimulation tests consisted of asking the subject to write a number on a piece of paper which would be visible to and known by both the examiner and examinee. Then the subject was asked to lie to that number on the stimulation test chart when he was asked if he had written several numbers.

On 127 (93%) of the 137 tests (in three tests, no stimulation tests were given) discernable responses were found in at least one component. No response was noted in 10 (7%) of the 137 tests. Good to excellent GSR reactions were noted in 92 (66%) of the 137 tests. Good blood pressure responses were noted in 70 (51%) of the 137 tests. Good pneumo responses were found in 28 (20%) of the tests. One person refused to lie on the stimulation test and the test was not administered.

It was interesting to note that on two of the stimulation charts there was a reverse blood pressure peak, indicated by a decrease in blood pressure to the point where the lie question was asked and then an increase in blood pressure to the end of the chart.

#### Announcement of Chart Beginning

It was noted in 38 cases of the 140 (27%) showed a discernible deceptive pattern at the point where the examiner announced the test was beginning. In 17 of these 38 cases (50%), the most active component was the GSR.

#### Test Minutes on Non-Deceptive Subjects

The average length of test - from pre-test to conclusion - was 92 minutes. The breakdown is as follows:

Pre-test (interview-question formulation, etc.)	65 minutes
Test (actual running of charts)	24 minutes
Post-test interview (usually an explanation of test results)	<u>3 minutes</u>
	92

#### Time Lapse

The time lapse between the date of the crime and testing of subjects was from one week to six months.

### Most Effective Control Question

At least two control questions were asked on each chart in 138 of the tests. On two tests the subject refused to discuss any matters concerning control areas and no control questions as such were asked on these examinations. On most tests the first control question asked (Question position number 4 on Backster ZOC, and question position number 6 on the Modified General Question Test) was a general control which covered a broad area, for example, "Between the age of 15 and 25 did you steal anything?" The second control question (positioned as question number 6 on the ZOC and usually as question number 10 on the MGQT), was more specific in nature, such as, "Did you steal anything from XYZ Company when you worked there?" All cases were not theft cases and control questions appropriate to the crime were used.

Better deceptive responses were found to the first control question (general control) in 87 of the 138 tests (about 63%). The second control, or the more specific control question was found to have better responses in 52 (about 37%) of the 138 tests on which control questions were used. In most test charts there were notable responses to both control questions.

### Admissions to Control Questions in Pre-Test

Of 138 subjects with whom control questions were discussed, 93 (67.4%) made admissions in the control area in the pre-test interview. In cases involving thefts, 90 (84%) of 107 persons tested made admissions to controls during the pre-test interview. Of 33 persons tested on bomb cases, only 3 (9.9%) persons made admissions to controls during pre-test. On the bomb cases, the control areas were discussed but admissions were not strenuously sought.

### Peak of Tension Tests

None of the 3 persons upon whom peak of tension tests were administered, responded to the relevant question in the test.

### Response to Relevant Questions by NDI Subjects

In 28 of the tests (20%), greater response to relevants than to controls was found in one or more components in one or more charts of innocent subjects.

Of the 28 tests where one component responded consistently greater to relevants than to control questions, the breakdown is as follows:

Galvanic Skin Response	14 of 140 subjects	10.0%
Cardio tracing	9 of 140 subjects	6.4%
Pneumograph tracing	5 of 140 subjects	3.6%

The tests were determined to be non-deceptive in these 28 cases because of greater responses to control questions in the other two component tracings.

Polygraph Data Sheet (Questions answered during pre-test)

On the reverse of the Polygraph Data Sheet used by Postal Inspection Service Polygraph Examiners is a list of 16 questions which the examiner uses in his pre-test interview to elicit verbal responses from the subject. These questions concern the attitude of the subject toward the polygraph examination as well as his observations and information he has concerning the offense under investigation. These questions were modified to fit the needs of the Postal Inspection Service and are very similar to the questions Mr. John Reid uses during his testing procedure as a behavioral study of his examinees.

Two of the questions that concern the attitude of the examinee toward the polygraph examination and his attitude toward the offender were examined at length.

Question #11 of the Polygraph Data Sheet reads: "How do you think you will make out on this polygraph test?" Of 140 Data Sheets examined, 80 indicated the examinee made a positive statement regarding his success in passing the polygraph examination. Some examples of statements made by examinees are: "I have nothing to worry about.", "I will make 100%", "If the machine does what it is supposed to, I will do alright.", "I know I'll pass it."

Of the 140 forms reviewed, 32 showed no answer recorded by the examiner.

Seventeen of the 140 forms indicated the examinee made less than positive statements such as "I don't know.", or "I have no idea."

None of the examinees gave negative statements to this question as reported in the study of deceptive subjects of February 11, 1974.

Question #15 on the Polygraph Data Sheet reads: "What do you think should be done to the person who did this?" Of 140 forms reviewed, 85 indicated the examinee recommended prosecution and a stiff penalty for the person who committed the crime. No answer was recorded on 34 of the forms. On 21 of the forms, the examinee had indicated mild treatment, said it was none of his business, or was non-committal. Typical statements made by NDI subjects who expressed a positive attitude in answer to Question 15 are: "Prosecute him to the fullest extent of the law.", "Shoot him.", "Break his neck.", "Send him to prison for ten years.", "Give him life.", "The pain and worry he has caused me, I would have no mercy on him." These are statements of verified innocent people.

\* \* \* \* \*

Some comments on the differences and/or correlations shown in this study and the one completed on deceptive subjects and reported February 11, 1974, appears to be in order.

In the study of deceptive subjects it was found that pneumograph tracings were the prominent deception component in 63% of the tests, as compared with the current findings of 40% in non-deceptive subjects. This represents

a very significant 23% variation in this component function. In the current study of NDI subjects, the cardio tracing was the prominent deceptive component in 43.6% as opposed to 29% reported in the study of deceptive subjects. The study of deceptive subjects disclosed the GSR to be the prominent component in 8% of the tests while it was found to be 16.4% on non-deceptive subjects. Examination of these data and the test charts leads us to believe that more reliance can be placed upon cardio responses to control questions in clearing a subject of suspicion than can be placed upon cardio responses to relevant questions as an indicator of deception.

This is partially confirmed by the fact that in 20% of the tests greater responses to relevants than to controls were found in one or more components. (See paragraph on Response to Relevant Questions by NDI Subjects above).

While 17% of the examinees in the study of deceptive subjects attempted to distort test charts on at least one specific crime chart, not one instance of such an attempt was found among the non-deceptive examinees. It would appear that deliberate distortion of test charts should be an indicator of deception.

While the percentages varied somewhat between the two studies, it was generally found that the same kinds of deception criteria were noted. In both studies it was noted that suppression was the most common criteria seen in the pneumograph tracing; increase and decrease in blood pressure was most common in the cardio tracing; and a sudden increase was most common in the GSR tracing. It should be noted, however, that among the NDI subjects, only 4% showed a pulse rate change in the cardio tracing as opposed to 12%, or three times as many, of the deceptive subjects. Accordingly, pulse rate changes can be viewed as a good indicator of deception.

A comparison of the findings of the best chart is as follows:

	NDI Subjects (140)	DI Subjects (76)
First Chart	34.3%	38%
Second Chart	37.8%	32%
Third Chart	27.9%	30%

These findings would seem to indicate that some NDI subjects may respond better on the second chart, after the stimulation chart, than deceptive subjects. Also there is an indication that deceptive subjects may respond better on the first chart, and that the ability to respond tends to decrease more rapidly with NDI subjects than with DI subjects.

Data obtained in this study indicates that NDI subjects respond to stimulation tests as well as or better than DI subjects. It was noted that the GSR tends to be the most reliable indicator of deception in stimulation tests.

In comparing test minutes of NDI and DI subjects it was found that the pre-test interview times were approximately the same. The actual test time for NDI subjects (24 minutes) was approximately half that of DI subjects (58 minutes). An explanation of the time difference could be that fewer

charts were necessary in most instances for NDI subjects. Post test time, of course, was extremely short for NDI subjects since no interrogation was required.

\* \* \* \* \*

From the analysis of responses on deceptive charts reported in February 1974 and charts of non-deceptive persons reported herein, a number of conclusions can be reached. These conclusions in some instances bear out earlier research completed by other polygraphists. The following conclusions are presented:

- a. Innocent subjects will produce physiological responses to control questions to approximately the same degree that guilty subjects will respond to relevant questions.
- b. The subject may respond more to relevant questions than to control questions in one component, even though he is innocent of the crime under investigation.
- c. Respiration responses are more pronounced and may, therefore be a better indicator of deception in charts of guilty subjects.
- d. Cardio tracings appear to be the best component to show responses in charts of NDI subjects. Accordingly, more weight should be given cardio responses to clear subjects of suspicion than to arrive at an opinion of deception in the absence of consistently clear deceptive responses in the pneumograph and GSR tracings.
- e. Attempts to distort polygraph test charts should be considered an indication of deception.
- f. That innocent subjects will respond equally as well to stimulation tests as will deceptive subjects.
- g. The time lapse between the date the crime is committed and the date the polygraph examination is administered seems to have little affect on the subject's ability to respond.
- h. The innocent person does not have a negative attitude toward passing the polygraph examination. The guilty subject is more prone to have a negative attitude toward the test, or to make remarks about his lack of confidence in the polygraph.
- i. The innocent person will more often than not recommend a stiff punishment for the offender. The guilty person will seldom recommend any punishment and often evades answering this question by claiming he has no opinion on what should be done to the offender.

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ADMISSIBILITY OF POLYGRAPH EVIDENCE IN  
1975: AN AID IN DETERMINING CREDIBILITY  
IN A PERJURY-PLAGUED SYSTEM

By

Barry Tarlow\*

It has been said that decisions of the higher courts do not affect police behavior but only police testimony.<sup>1</sup> When, for example, an officer testified under oath that a defendant obligingly opened the trunk of a car, handed the officer a contraband-laden shoebox and advised the officer, "[y]ou can take whatever you want,"<sup>2</sup> the Supreme Court of California merely noted that "[d]efendant's testimony, not surprisingly, differed from that of the officer."<sup>3</sup> Then, applying long established guidelines of appellate review, the high court deferred to an "implied" finding of the trial court that the officer was somehow telling the truth.<sup>4</sup>

Mr. Justice Brennan has observed, in the context of a hearing to determine the voluntariness of a confession, that a hearing on improper acquisition of evidence "normally presents the factfinder with conflicting testimony from the defendant and law enforcement officers about what occurred . . ."<sup>5</sup> Ordinarily "the question before the factfinder is whether to believe one or the other of two self-serving accounts of what has happened . . ."<sup>6</sup> This dilemma was present in *People v. Dickerson*,<sup>7</sup> when an officer asserted that the defendant's common-law wife, nine months pregnant, had willingly let the police enter the family home to seize evidence implicating Mr. Dickerson in a burglary. The woman maintained that the police disregarded her objections and entered. According to the court of appeal, the legality of the search was deemed by the trial court to pivot upon credibility. Viewing the woman as a "putative spouse, bearing this man's child,"<sup>8</sup> and the officer as a disinterested "man performing his duties,"<sup>9</sup> the court was required to resolve "as . . . in most criminal cases" a conflict between the two "diametrically opposed statements of facts."<sup>10</sup> The trial court stated that it "must believe one or the other."<sup>11</sup> Naturally it chose the officer's version.

On appeal, Justice Kaus empathized with the trial "court's apparent reluctance to find the officer's version to be correct. It certainly approaches the inherently improbable."<sup>12</sup> However, he concluded that the trial court's criteria for weighing the officer's testimony against that of the wife were "highly suspect."<sup>13</sup> The trial court had apparently ignored the following considerations: "the natural desire of a police officer to see a criminal brought to justice," the fact "[t]hat law enforcement is often a 'competitive enterprise,'" and the potential civil and administrative sanctions facing "a police officer who has conducted an illegal search and seizure."<sup>14</sup>

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Other courts have also intimated at least a minimal awareness of the seeming omnipresence of the police practice of adding to or subtracting from the facts. For example, in Miranda v. Arizona, Justice Harlan forecast rather accurately that police who deny third-degree tactics will "lie as skillfully about warnings and waivers."<sup>15</sup> Adams v. Williams was predicated upon the fact that "a person known to Sgt. Connolly approached his cruiser and informed him that an individual seated in a nearby vehicle was carrying narcotics and had a gun at his waist."<sup>16</sup> This "fact" had given Chief Judge Friendly cause for wonder, since the phantom informer was not invented until the second suppression hearing in the case; the officer's first version was that he was responding to a police radio report.<sup>17</sup> The California Supreme Court has even implied that police uniformly lie about the existence of "furtive" gestures to justify auto stops and searches.<sup>18</sup> Perhaps the most bizarre item is found in California v. Krivda,<sup>19</sup> where, as amicus curiae, Illinois urged abolition of the exclusionary rule "because it causes the police to perjure themselves in hundreds of cases."<sup>20</sup>

One solution to the problem may be provided by the science of polygraphy. In the leading California case of People v. Cutler,<sup>21</sup> Judge Allen Miller explained a primary reason for reliance on expert opinion based upon polygraph examinations:

It is the experience of this court during his ten years of presiding at criminal trials that the great majority of trials on [the] issue of guilt or innocence turn on the credibility of witnesses that perjury is prevalent and the oath taken by witnesses has little effect to deter false testimony. The principal role of a trier of fact is the search for truth and any reasonable procedure or method to assist the court in this search should be employed.<sup>22</sup>

It is important to observe that Judge Miller did not focus solely upon the collateral inquiries then before the court as factfinder; rather, though only as dictum, the Cutler opinion expressed concern with perjury which affects the issue of a person's guilt or innocence.<sup>23</sup> Other courts have voiced similar apprehensions.<sup>24</sup>

If the judicial system is to fulfill its duty of searching for truth and maintaining integrity, it must commence a war against perjury.<sup>25</sup> The war cannot be won with weapons restricted to cross-examination, inferences from demeanor, and other relics from the crossbow era of Henry II. The arsenal against sophisticated witness mendacity must be equipped with the most advanced, accomplished, and effective scientific system devised to date. Unless we are interested in the preservation of institutionalized perjury, there is no tenable reason why qualified polygraphers should not be welcomed by courts confronting credibility questions;<sup>26</sup> clearly, polygraphy "appears to have something valuable to add to the administration of justice."<sup>27</sup>

#### The Method and Theory of Polygraphy

The polygraphy instrument is designed to monitor and measure certain physiological responses of a person who is answering a set of "yes" or "no" questions. The instrument produces an electromechanical recording of uncontrollable physiological changes occasioned by the internal stress caused

by an examinee's conscious insincerity. A standard polygraph ordinarily delivers this information with total accuracy.<sup>28</sup> The polygraph examiner's analysis of the physiological measurements and other circumstances of the examination lead to his expert opinion of whether the person answered the questions truthfully.<sup>29</sup>

In *United States v. Ridling*,<sup>30</sup> Judge Joiner provided a comprehensive description of the theory of polygraphy. Based on the principle that the autonomic nervous system responds automatically, involuntarily, and uncontrollably to stress, the polygraph measures and records these responses such as blood pressure, pulse, respiration, and sweat gland activity. "A lie is an emergency to the psychological well being of a person and causes stress. Attempts to deceive cause the sympathetic branch of the autonomic nervous system to react and cause bodily changes of such a magnitude that they can be measured and interpreted."<sup>31</sup>

This theory has not won universal approval. In *United States v. DeBetham*,<sup>32</sup> Judge Thompson stated that it was relevant to admissibility that no conclusive findings could be made as to the underlying physiological hypothesis of the polygraph.<sup>33</sup> Moreover, "[t]he question of . . . validity is an extremely complex issue which may never be fully answerable."<sup>34</sup> For that matter, however, there does not appear to be general scientific acceptance of a theory to explain all the phenomena of aspirin. But even though aspirin's theoretical underpinnings may never be elucidated to the satisfaction of the scientific community, the fact is that it works. So does the polygraph.<sup>35</sup>

#### Summary of Salient Developments in Polygraphy and the Admissibility of Test Results

Chronologically, the significant advances in the quest for a scientific credibility evaluation assistance system, including the admissibility in evidence of the system's expert opinion output, may be summarized as follows:

1. In 1895, a pioneering criminologist, Cesare Lombroso, used a device known as a "hydrosphygmograph" as a means of testing the truth of statements made by criminal subjects. The instrument recorded changes in blood pressure and pulse patterns.<sup>36</sup>

2. In 1923, the results of a systolic blood pressure measurement, correctly indicating that a suspect had told the truth when he denied his guilt, were excluded from evidence because the expert did not perform the test in the presence of the court while the defendant was testifying.<sup>37</sup> In upholding the trial court's discretion, the court of appeals set forth the infamous "general acceptance" standard for the admissibility of polygraph evidence: the opinion testimony would be admissible only if the scientific technique or device was sufficiently established to have gained general acceptance in the particular field.<sup>38</sup>

3. In 1938, expert opinion testimony that a person had told the truth was admitted upon a foundational showing of validity of results based upon a device which measured psychogalvanic skin response.<sup>39</sup>

4. In 1948, a truth determination system of unknown components served to convict a man of lewd and lascivious acts upon a child, and the admissibility

of expert opinion testimony was sustained on appeal.<sup>40</sup>

5. At least since 1954, the California Supreme Court has consistently recognized the admissibility of expert opinion testimony on matters such as character traits, including credibility, even under rather bizarre circumstances.<sup>41</sup>

6. In 1957, Justice Traynor of the California Supreme Court indicated that polygraph evidence did not yet have sufficient reliability to warrant admissibility.<sup>42</sup>

7. In 1966, the United States Supreme Court suggested that the Fifth Amendment privilege against self-incrimination would save an individual from compelled testing which might determine "guilt or innocence on the basis of physiological responses."<sup>43</sup>

8. In 1969, a federal appellate court recognized the advanced state of the polygraph system for assisting in the truth determination process. The court intimated that expert opinion testimony based upon polygraph evidence should be received if a proper evidentiary foundation was presented.<sup>44</sup>

9. In 1972, three federal district courts<sup>45</sup> found a scientific system for credibility determination sufficiently reliable to be the basis for expert opinion testimony. The system consisted, in part, of a device which measured physiological responses to questioning, including: (1) psychogalvanic skin response; (2) blood pressure; (3) pulse rate; and (4) respiration rate.<sup>46</sup> Moreover, a federal appellate court intimated that trial courts have discretion to admit polygraph test results.<sup>47</sup>

10. In 1972, a Los Angeles superior court found that, inter alia, appellate decisions should be reexamined in light of the fact that the polygraph technique enjoys general acceptance among psychologists, physiologists, and polygraphers as a reliable procedure for detecting deception, and that, in view of the recognized accuracy "in excess of 90%," the proffered polygraph evidence should be admitted.<sup>48</sup>

11. In 1973, a federal district judge in San Diego relied upon polygraph test results in granting a judgment of acquittal after a jury verdict of guilty;<sup>49</sup> and the California Senate, after extensive hearings, passed a bill which would permit polygraph test results to be introduced into evidence in judicial proceedings.<sup>50</sup>

12. In 1974, the Supreme Judicial Court of Massachusetts encouraged trial judges to exercise their discretion in admitting polygraph test results.<sup>51</sup> Although the court refused to hold that polygraph evidence is always admissible, or to enumerate specific minimum guidelines for admissibility, the opinion strongly indicates an affirmative approach to the problem by directing the trial courts to fairly and carefully exercise their discretion as to whether or not polygraph test results should be permitted in court. Similarly, but without encouraging the trial judges to admit the evidence, Chief Judge Chambers of the United States Court of Appeals for the Ninth Circuit commented: "We told the trial courts that they have the discretion to admit polygraph evidence."<sup>52</sup>

Judicial Recognition of Reliability

In *United States v. DeBetham*,<sup>54</sup> the court considered the admissibility of a polygraph examination in a nonjury trial where the defendant was accused of knowingly transporting five grams of heroin. Defendant offered to introduce the results of a polygraph examination which established that he had no knowledge that the heroin was in his automobile. Although the trial court, apparently exercising its discretion, declined to admit the test results, it analyzed the polygraph field in depth, and found that the technique was extremely accurate if conducted by a competent examiner: "[T]he most important factor involved in the use of any [polygraph] is the ability, experience, education and integrity of the examiner himself."<sup>55</sup> In reviewing the extensive evidentiary presentation, the court noted that "the field of instrumental lie detection has . . . achieved the status of a department of systematized knowledge that is currently being enriched through further investigation and research."<sup>56</sup>

The court went on to observe that it had considered testimony, which was essentially undisputed, that the polygraph test had a high degree of accuracy when conducted by competent examiners under the proper conditions, and was estimated to have 90 percent accuracy with less than 1 percent error by reputable experts who based their statistics upon actual examinations in the field.<sup>57</sup>

Of the authorities cited by the court the most well known were Mr. Reid and Mr. Inbau. In their book Truth and Deception, they reversed their opinion of thirteen years before that polygraph evidence should not be admissible. With the improvement of the polygraphic art, by 1966 their studies indicated that polygraph testing was 95 percent accurate with less than 1 percent error, 5 percent of the subjects not being capable of diagnosis because of psychological or physiological handicaps.<sup>58</sup> The court also considered the testimony of an army officer who had been director of criminal records of the Central Intelligence Division since 1965. He testified that during his entire career as an army polygraph operator, he was aware of only two persons who had "passed" the polygraph who were subsequently prosecuted.<sup>59</sup>

The DeBetham court concluded that if field studies "even . . . actually approximate the accuracy achieved in the controlled experiments, between 80 and 90 per cent, the reliability of polygraph can fairly be termed 'substantial', thus warranting a finding of probative worth."<sup>60</sup>

[T]he truly qualified polygraph examiner can eliminate or prevent test errors arising from an unfit subject or improper examination conditions . . . [S]uch an examiner's qualifications can be adequately tested through examination and cross-examination without unduly consuming the court's time . . . [T] Court is satisfied that sufficient safeguards exist to preclude significant impairment of the technique's reliability.<sup>61</sup>

While affirming the district court's exercise of discretion in refusing to admit the test results, the appellate court observed that, "simply stated,

the evidence at the [district court] hearing vigorously supports the accuracy of polygraphic evidence."<sup>62</sup>

The Los Angeles Superior Court has also recognized the accuracy of the polygraph technique. In People v. Cutler,<sup>63</sup> the court admitted polygraph evidence offered by a defendant at a motion to suppress, and made several specific findings as to the accuracy of the science of polygraphy after approximately seven days of evidentiary hearings. These included findings that:

[T]he science of polygraphy including the developing of more sophisticated polygraph machines; the development of standards of procedures in pre-examination interviews; the elimination of unsuitable subjects; the programming of relative and control questions; the training and developing of qualifications for examiners has been the subject of great and significant advancement in the last ten years.

... [R]ecent laboratory and in the field research has established a generally recognized reliability and validity of the polygraph in excess of 90 percent.

. . . . .

... [T]he polygraph now enjoys general acceptance among authorities . . . and possesses a high degree of reliability and validity as an effective instrument and procedure for detecting deception.

... [M]any defense and security agents of the United States Government determine whether charges and court martials will be filed or prosecuted on the basis of polygraph examination.

... [S]everal law enforcement agencies in California uniformly refuse to file complaints or informations when no deception is shown in polygraph examinations of suspects ... <sup>64</sup>

The Cutler case suffered a strange fate, which hopefully will be rectified through the appeal now pending from another California decision, People v. Adams.<sup>65</sup> Although the district attorney in Cutler originally intended to appeal the trial court decision, after more than a year's delay he abandoned the appeal,<sup>66</sup> ostensibly because of a fear that the admissibility issue would not be squarely faced in the case,<sup>67</sup> but most likely in order to avoid establishing binding appellate precedent for admissibility.<sup>68</sup> Therefore, he precluded the possibility of creating a basis for judicial notice of foundation evidence and dispensing with the need for an extensive foundational showing in each case. Of course the prosecutor was aware that his actions perpetuated the present inability of most defendants to utilize polygraph evidence due to lack of funds, time and ability to present the necessary foundation evidence. According to the trial judge, the district attorney's decision was a "cop-out."<sup>69</sup>

Adams, on the other hand, may well determine the law concerning admissibility of polygraph evidence in California. In order to avoid the fate of Cutler, the trial judge placed the issue directly before the appellate court by making every factual and policy finding necessary for admission, concluding that he believed the test results should be admitted, but denying the motion to admit the evidence. The question of admissibility will be presented on appeal based upon a record which is highly favorable to defendant, but in such

a manner that the district attorney cannot avoid resolution of the matter through procedural maneuvers.

Outside California, two federal district courts have also recognized the polygraph's high degree of accuracy. In *United States v. Zeiger*,<sup>70</sup> the defendant produced extensive testimony to establish a foundation for the in-court opinion evidence of a police officer who had administered a polygraph examination.<sup>71</sup> The court found that:

[t]oday, polygraph has emerged from that twilight zone into an established field of science and technology ... Its extensive use by law enforcement agencies, governmental security organizations, and private industry throughout the country is testimony to the undeniable efficacy of the technique.

.... The testimony of the experts and the studies appearing in the exhibits lead the Court to believe that the polygraph is an effective instrument for detecting deception. The failure of the Government to demonstrate significant disagreement with this basic proposition, the absence of statistical data pointing to any other conclusions, and the accepted and widespread absorption of the polygraph into the operations of many governmental agencies, all confirm the Court's conclusion that the polygraph has been accepted by authorities in the field as being capable of producing highly probative evidence in a court of law when properly used by competent, experienced examiners.<sup>72</sup>

In *United States v. Ridling*,<sup>73</sup> the court held that polygraph evidence, which it regarded as opinion testimony,<sup>74</sup> would be admissible in the pending perjury trial and recognized the reliability of the polygraph technique: "The evidence in this case indicates that the techniques of the examination and the machines used are constantly improving and have improved markedly in the past ten years."<sup>75</sup>

#### Scientific Evidence of Accuracy

Several recent studies, including some relied upon in the cases discussed above, have been conducted in an attempt to assess the reliability and the validity of polygraph charts and interpretations. Validity is the degree to which a test predicts or measures accurately that which it is supposed to predict or measure; reliability refers to the degree to which a test consistently yields the same results regardless of the accuracy of the predictions. In order for a test to be valid it must be reliable; however, the converse is not true, for results can be entirely consistent without predicting anything.

Although tests administered in the laboratory are far less accurate than those involving an actual crime, Gordon H. Barland and David C. Raskin of the University of Utah conducted an experiment in which they administered polygraph examinations to seventy-two subjects, half of whom were participants in a mock crime situation.<sup>76</sup> The subjects, whose "crime" was theft of ten dollars, were told they could keep the money if they could successfully avoid detection. Three separate charts were recorded on each of the subjects and the relevant responses were scored on a continuum ranging from negative 3 (deception) to positive 3 (nondeception).

The charts were submitted to five polygraphers from the army's military school of polygraph in Fort Gordon, Georgia. These examiners knew nothing about the individual subjects. Equipped only with the polygrams and the wording of the questions, each examiner scored the responses of the subjects for each physiological indicator, and the scores were then compared. Comparative analysis of the data revealed an average correlation of .86.<sup>77</sup> Out of the 559 cases where two examiners both reached some decision about a subject's truthfulness, they agreed 534 times, or approximately 95.5 percent.

A number of published studies have reported accuracy of field polygraph examinations in excess of 92 percent.<sup>78</sup> A recent article by Bersh<sup>79</sup> discusses what is probably the most extensive and thorough study published to date, conducted under the supervision of Robert Brisentine for the Department of Defense. A panel of experienced military criminal lawyers were given the complete file on each case, with the polygraph results removed. Each attorney independently determined the guilt or innocence of each defendant based upon the available evidence and ignoring "legal technicalities." When all four panel members were in agreement as to guilt or innocence of a defendant, the decision of the polygraph examiner was the same as that of the panel in 92.4 percent of the cases.

These results reported by Bersh have been confirmed in Gordon Barland's doctoral research.<sup>80</sup> Using examinations of criminal suspects, Barland reported that the polygraph results were in agreement with the independent judicial outcomes in 90.9 percent of the cases. Therefore, the available evidence indicates that when the judgments of judicial outcomes by a panel of expert attorneys are used as a criterion of guilt or innocence the polygraph decisions are in very high agreement and can be used as an accurate prediction of trial verdicts.

In another study, conducted by John Reid and Frank Horvath,<sup>81</sup> polygraph examination charts were selected from twenty-five actual criminal investigations wherein the truth had been ascertained from fully corroborated confessions of the guilty subjects. Of the seventy-five examinations administered in the cases, thirty-five were considered rather dramatically indicative of truth or deception to a fully qualified examiner. The remaining forty presented a serious challenge to even the best polygraphers. To assess the examiner's expertise in this highly difficult exercise in chart interpretation, the polygrams and a summary of the nature of the investigation were submitted to seven experienced examiners and three inexperienced examiners. The examiners were not advised of the age or sex of the subjects, nor the content of the questions asked; however, they were told where the relevant questions were located on the charts. The trio of inexperienced polygraphers attained an average of more than 79 percent correct judgments. The seven examiners who had more than six months experience achieved an average of more than 91 percent correct judgments in the detection of truth and deception.<sup>82</sup>

In addition to experiments indicating the reliability and validity<sup>83</sup> of polygraphy, and the extreme difficulty of "beating" the test under a variety of circumstances,<sup>84</sup> studies have confirmed the underlying theory of polygraphy: the relationship of measureable physiological responses to the psychological process of deception.<sup>85</sup> Experiments have revealed higher levels of detection where the subject is questioned about matters which have personal



significance<sup>86</sup> (as opposed to material relevant only in the experimental context), and where the subject has a high motivation to avoid detection.<sup>87</sup> Such studies are highly significant in that they indicate an even higher level of polygraph accuracy in the "field," where the subject has a high motivation to avoid detection<sup>88</sup> and possesses personal knowledge of guilt, than in the mock laboratory situation.

## The Legal Rationale for Admission of Polygraph Test Results

### Expert Opinion Evidence Affecting Credibility

The testimony of an expert polygraph examiner consists of his opinion as to whether the subject of the examination was telling the truth or something less than the whole truth when answering the test questions. Of course, the expert is testifying as to the truth of the subject's stated beliefs; i.e., as to whether the subject believed that his answers were true, rather than as to the actual empirical veracity of those answers.<sup>89</sup> After carefully arranged and supervised questioning, the polygraph recordings of emotional activity must be interpreted by the expert examiner "and that interpretation is stated in the form of an opinion."<sup>90</sup>

In federal court, pursuant to rule 26 of the Federal Rules of Criminal Procedure, "[t]he trial court has considerable discretion as to matters of opinion."<sup>91</sup> The guidelines for admitting an expert's opinion are clear: "A witness who by education and experience has become an expert in an art, science or profession may state his opinion as to a matter in which he is versed and which is material to the case, and he may also state his reasons for such opinion."<sup>92</sup> The standard for appellate review is also well established: " '[T]he qualifications of an expert are within the purview and discretion of the trial judge.' Unless the trial court's exercise of discretion is clearly erroneous, its decision as to the qualifications of an expert witness should not be disturbed."<sup>93</sup>

In Lindsey v. United States,<sup>94</sup> the Ninth Circuit recognized the "increasing tendency to allow expert psychiatric opinion testimony as to the credibility and character traits of a witness."<sup>95</sup> Opinion testimony on credibility was admitted, for example, in Hanger v. United States,<sup>96</sup> where a psychiatrist testified as to whether a person believed a statement of events.<sup>97</sup> When polygraph test results are offered, the court is similarly presented with expert opinion testimony as to whether a person believed a statement of events. United States v. Ridling establishes that the trial judge has discretion to admit or exclude expert testimony based upon polygraph evidence subject only to the qualification of the expert and relevancy of the testimony.<sup>98</sup>

### Scientific Evidence: General Rules

According to Professor Strong, the literature of evidence tends "to restrict the term scientific evidence to specific data obtained by scientific means and to treat evidence whereby general propositions of science are furnished and applied under the head of expert testimony."<sup>99</sup> Evidence of the results of polygraph examinations has been categorized as scientific evidence.<sup>100</sup>

Scientific evidence normally consists of scientific data to which some general scientific proposition is applied in order to draw the conclusion for which the testimony is offered.<sup>101</sup> For example, ballistics testimony usually consists of some shells upon which there are markings (data) and testimony to the effect that no two bullets are marked identically after firing and that by comparing the markings, shells can be matched to the particular weapon from which they were fired (general principle). Assuming the expertise of the witness has been established, he may then testify to his conclusion as to which weapon fired the bullet. If that conclusion is relevant to the case (e.g., the victim was wounded by a bullet which is matched to the gun found in defendant's pocket), it will be admitted. Of course, if it is not judicially noticed that no two bullets are marked exactly alike, a foundation for this premise must be established or the expert's testimony is irrelevant.<sup>102</sup>

[L]ike other propositions, scientific propositions may yield conclusions of varying value for the case. These may intrude to some degree upon the "ultimate issues," and they may or may not be obscured by some human tendency of the jury to apply some other invalid proposition of its own to the basic data to reach an improper and "prejudicial" conclusion. Each of these factors ought to be considered with respect to scientific evidence, and are within the realm of judicial rather than scientific expertise.<sup>103</sup>

#### Scientific Evidence: The Frye Standard Analyzed

At some point all new scientific principles presented in court have been subjected to judicial scrutiny.<sup>104</sup> Few, however, have been held to the rigorous "general acceptance" standard established for polygraph-based opinion testimony in Frye v. United States,<sup>105</sup> a 1923 decision by the District of Columbia Circuit: the opinion testimony would be admissible only if the scientific technique or device (there, systolic blood pressure measurement) was generally accepted in the particular scientific field involved.<sup>106</sup> Courts considering the admissibility of most type of scientific evidence have only required that the scientific principles supporting the expert testimony be established as reliable enough to insure acceptably probative results.<sup>107</sup>

If the question of the admissibility of polygraph test results were determined by the "aid to the jury" or "reliable enough to be probative" standards applied to most scientific evidence, polygraph evidence would clearly be admissible.<sup>108</sup> Perhaps, as the high accuracy of the polygraph technique is repeatedly established in courts, the emphasis on "general acceptance" will diminish; this may be particularly true insofar as general rules of evidence regarding expert testimony can protect against the concerns which underlie the Frye doctrine<sup>109</sup> while not denying to juries what is unquestionably probative and extremely helpful evidence.<sup>110</sup>

The Frye<sup>111</sup> court ruled that the evidence in question had been properly excluded by the district court because "the systolic blood pressure deception test [had] not yet gained such standing and scientific recognition among physiological and psychological authorities as would justify the courts in admitting expert testimony deduced from the discovery development, and experiments thus far made."<sup>112</sup>

The district court in United States v. DeBetham<sup>113</sup> suggested that this language was the actual holding of the Frye case,<sup>114</sup> and that it provides a clear basis for distinguishing polygraph evidence today from that presented in Frye.<sup>115</sup> Therefore Frye merely held that a specific device, the systolic blood pressure test, was not yet admissible. Compared to a current credibility evaluation assistance system, such as the five-measurement polygraph,<sup>116</sup> the process before the Frye court (which measured only blood pressure) was a primitive tool. It was no more a forerunner of modern polygraphy than was alchemy the dawn of neurosurgery.<sup>117</sup>

In spite of the narrow holding in Frye, dozens of tribunals have refused to admit polygraph test results by relying instead on the language in Frye:

[W]hile Courts will go a long way in admitting expert testimony deduced from a well-recognized scientific principle or discovery, the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs.<sup>118</sup>

Even assuming that "general acceptance" governs the admissibility of scientific evidence,<sup>119</sup> polygraphy would now satisfy that requirement.

#### Judicial Notice

Scientific testimony usually involves a general scientific principle and specific data or evidence to which that principle is applied by an expert in order to reach a conclusion relevant to the issues of the particular case.<sup>120</sup> The validity of the principles underlying such techniques as handwriting analysis, fingerprinting, and ballistics are so universally recognized that a court may take judicial notice of them and eliminate the necessity of establishing a foundation through expert testimony.

Professors McCormick<sup>121</sup> and Strong<sup>122</sup> have both noted that although the general acceptance standard is appropriate in determining whether a court shall take judicial notice of scientific assertions,<sup>123</sup> it is not a proper criterion for evaluating the admissibility of scientific evidence. Failure to meet the Frye test of general acceptance should not preclude admission of polygraph evidence per se, but should only require the proponent of the evidence to present satisfactory expert testimony as to the technique's validity.

#### Frye in 1975: Reinterpreting "General Acceptance" in the "Particular Field"

Current case law establishes that only the opinions of polygraphers and those studying polygraphs (rather than psychologists as suggested by Frye) should be considered in determining the general acceptance of polygraph evidence. For example, in Lindsey v. United States,<sup>124</sup> the Ninth Circuit invoked Frye for the requirement of "'general acceptance in the particular field in which it belongs,'" and then proceeded to define the "particular field" (use of sodium-pentothal) to consist of experts in "narcoanalysis." There was no suggestion of any need for general acceptance by medical doctors, psychiatrists, or psychologists.

Huntingdon v. Crowley,<sup>125</sup> involving the admissibility of a new blood grouping technique, applied a similarly restrictive approach. The California

Supreme Court did not inquire into the technique's acceptance within the "particular field" of medical practitioners, nor even medical blood specialists. Rather, the court looked to the experts who might aid its determination;<sup>126</sup> those in the highly specialized field of "disputed paternity testing."<sup>127</sup> The court further stressed that the question of whether a scientific technique has, at any given point in time, gained general acceptance in its particular field is primarily a question of fact to be determined by the trial court.<sup>128</sup>

Under this increasing restriction by courts of "particular field" to knowledgeable specialists, the proper inquiry is not whether polygraphy (much less its underlying theory) has gained general acceptance among physiologists and psychologists, as suggested in Frye;<sup>129</sup> rather, it is whether there is general acceptance of the technique by experts in polygraphy. Considering the restrictive definitions applied to other fields, and the requisite level of "general acceptance," the expert polygrapher certainly has cause for wonder. If the issue involves sodium pentothal the answer may be supplied by an expert narcoanalyst. Paternity blood testing is a particular field. One toxicologist can establish acceptance for his idea. If four physicists develop a speciality, they attain general acceptance in their own field.<sup>130</sup> It is difficult to explain to an expert polygrapher that polygraphy is somehow not a field of its own, but depends upon what psychologists and physiologists think of the state of polygraph technology on any given day.

#### "General Acceptance" as "General Use"

Twenty-three years after Frye, the District of Columbia Circuit Court was called upon to interpret the standard it had articulated in that case. In Medley v. United States,<sup>131</sup> the defendant had been arrested in possession of a revolver, bullets, and a fingernail file. The noses of the bullets had been scraped in a manner quite similar to that of bullets which had caused the death of a Mr. Boyer. Expert testimony, based upon a process known as "spectroscopy," indicated that the fingernail file "contained particles from the metal of a cartridge."<sup>132</sup> The introduction of this testimony was objected to on the ground that the technique was "so little known as to lack the degree of certainty justifying its use as evidence in a criminal case." However, the court ruled that it was "easily demonstrable that [spectroscopy] is now in general use in scientific research and industrial analysis. There is nothing in the testimony which in any respect conflicts with the rule applied by us in Frye v. United States..."<sup>133</sup> Logically and legally, this "general use" analysis of Frye seems appropriate. Logically, a principle which is widely used in decisionmaking by those concerned with practical results, such as industry and governmental agencies,<sup>134</sup> can be assumed to be valid and reliable. Legally, the language in Frye that "[j]ust when a scientific principle or discovery crosses the line between the experimental and demonstrable stages ... as would justify the court in admitting expert testimony deduced from the discovery, development and experiments thus far made,"<sup>135</sup> seems to distinguish between experimentation and development, and actual demonstrable application.

Thus, a scientific theory upon which only a handful of people are conducting scientific experiments is not sufficiently established to warrant admissibility. This was the case with the systolic blood pressure technique

in 1923. On the other hand, a theory which has developed past the experimental stage to "general use" in science or industry should be admissible in court. Since spectroscopy met this general use standard it was properly admitted in Medley; the foundation was apparently established by the court's notice of two publications on the subject.<sup>136</sup>

Under these "general use" guidelines, polygraphy clearly meets the "general acceptance" requirement of Frye. The widespread use of, and reliance upon, the polygraph by both private industry and government agencies was recognized by the district courts in both DeBetham and Zeiger:

[T]he Court was especially impressed with the evidence of widespread acceptance that the polygraph has received among federal and state law enforcement agencies, who apparently rely upon the technique in their day-to-day prosecutorial decision making.<sup>137</sup>

[E]xtensive use by law enforcement agencies, governmental security organizations, and private industry throughout the country is testimony to the undeniable efficacy of the technique.<sup>138</sup>

Similarly, the trial court in the recent California case of People v. Adams emphasized the widespread public and private use of polygraph testing and concluded defendant's foundation evidence was

sufficient to show that the Frye test of general acceptance has been met with respect to polygraph evidence testimony, not only among polygraph operators, physiologists, and psychologists, but also among investigatory agencies, generally.<sup>139</sup>

#### "General Acceptance" as "Reliable Enough to Have Probative Value"

In United States v. Zeiger, the court observed:

[A]cceptance of the polygraph can be meaningfully determined only with respect to a particular purpose to which the device is used and the degree of reliability required for that purpose ... For the purpose here at issue, Frye requires such acceptance and recognition "as would justify the courts in admitting expert testimony" deduced from a polygraph examination. The general criterion required for the admission of evidence is its relevance or tendency to prove a material fact.<sup>140</sup> "[I]f evidence is logically probative, it should be received unless there is some distinct ground for refusing to hear it."<sup>141</sup> And so Frye has been interpreted to demand general acceptance among the experts that current polygraph techniques possess a degree of reliability which satisfies the court of its probative value.<sup>142</sup>

This interpretation of Frye's "general acceptance" would appear close to the traditional standard for the admission of scientific evidence.<sup>143</sup>

The evidence is overwhelming that the results of polygraphy are vastly more reliable than 51 percent<sup>144</sup> and would "render the desired inference more probably than it would have been without the evidence."<sup>145</sup> This should satisfy

even those who want "reasonable certainty"<sup>146</sup> for fear that, with less probability, the prejudicial nature of the polygraph would be too overwhelming.

### Use of Polygraph Evidence in Court

#### Pre-1972 Cases

With the exception of three state cases,<sup>147</sup> no pre-1972 court considered the question of admissibility of polygraph evidence at trial in the context of an evidentiary hearing to establish the reliability of the technique as a foundation for an informed decision.<sup>148</sup> Professor McCormick correctly observed that in all of these jurisdictions a court could have admitted polygraph test results had a proper evidentiary foundation been established.<sup>149</sup> An analysis of the three pre-1972 state cases which did hear foundational evidence supports this conclusion.<sup>150</sup>

#### Post-1972 Cases

The general trend in the cases decided since 1972 has been to recognize that polygraph evidence may be admitted on a case-by-case basis if a proper foundation has been established.<sup>151</sup> The following language in United States v. Wainwright precipitated the shift away from per se exclusion of polygraph testimony:

[N]o judgment can be made without relevant expert testimony relating to the probative value of such evidence. Wainwright totally failed to supply the condition noted by Wigmore that before such evidence be admitted an expert testify "that the proposed test is an accepted one in his profession and that it has a reasonable measure of precision in its indications." The trial court properly excluded [the polygraph evidence] even though in a proper case it may be admissible.<sup>152</sup>

Since Wainwright, numerous courts have either admitted polygraph evidence at trial after an adequate foundation had been established in an evidentiary hearing,<sup>153</sup> or have recognized that such evidence can be admitted when a proper foundation is established.<sup>154</sup>

#### The Ninth Circuit Cases

Decisions within the Ninth Circuit are illustrative of the trends and problems in judicial treatment of admissibility of polygraph evidence. In United States v. DeBetham,<sup>155</sup> the district court ruled that it could not admit polygraph evidence because insufficient evidence had been presented to meet the Frye "general acceptability" test,<sup>156</sup> and that in any event two Ninth Circuit cases excluding polygraph evidence were controlling.<sup>157</sup> Although the court was apparently willing to reread Frye in light of the intervening years,<sup>158</sup> the Ninth Circuit precedent appeared insurmountable: "Were the Court writing on a clean slate, the foregoing conclusions . . . might well warrant a finding of admissibility in the instant case . . ."<sup>159</sup>

On appeal, the circuit court held that the two previous Ninth Circuit cases had not removed discretion from a federal court to admit polygraph evidence under appropriate circumstances.<sup>160</sup> However, the appellate court affirmed the conviction by concluding that due to the discretionary nature of admissibility, "[d]espite the strong showing made by appellant we are not ready to say that the trial judge abused his discretion in rejecting the offer."<sup>161</sup> The court emphasized that it was not holding "that polygraphic evidence is never admissible."<sup>162</sup>

The appellate court totally distorted the record to affirm this conviction. Judge Thompson did not exercise his discretion to exclude the test results, since he believed that the earlier Ninth Circuit decisions precluded him from admitting the evidence. In fact, the trial record establishes that he would have admitted the polygraph evidence if he had believed that he had discretion to do so. On petition for rehearing, however, the appellate court rejected the clearly appropriate approach of remanding to the trial court to allow the judge actually to exercise his discretion.

Unfortunately, the "admission within the trial court's discretion" approach of DeBetham has often been utilized to exclude polygraph evidence at the whim of the trial court.<sup>163</sup> Clearly, such arbitrary action constitutes a complete failure to exercise discretion, which is of course an abuse of discretion.<sup>164</sup> The trial court must weigh the conflicting interests, and should balance probative value against possible prejudice;<sup>165</sup> certainly the court must be governed by some standards. It seems imperative that appellate courts set out factors to guide the trial judges in exercising discretion.<sup>166</sup>

#### Commonwealth v. A Juvenile

The Massachusetts Supreme Judicial Court has recently taken a cautious first step in this direction. In Commonwealth v. A Juvenile,<sup>167</sup> that court remanded on the ground "that the defendant's motions concerning polygraph tests were not denied by the trial judge as a matter of discretion but rather as a ruling of law."<sup>168</sup> While declining to "limit the trial judge's discretion . . . by formulating strict minimum standards as prerequisites to qualification of polygraph experts,"<sup>169</sup> and asserting that "further learning, experimentation and experience are necessary before more comprehensive and all encompassing rules are considered for adoption,"<sup>170</sup> the Massachusetts appellate court nonetheless emphasized the necessity of a true exercise of discretion by the trial judge by setting forth certain guidelines:

[I]f a defendant agrees in advance to the admission of the results of a polygraph test regardless of their outcome, the trial judge, after a close and searching inquiry into the qualifications of the examiner, the fitness of the defendant for such examination, and the methods utilized in conducting the tests, may, in the proper exercise of his discretion, admit the results . . . As a prerequisite the judge would first make sure that the defendant's constitutional rights are fully protected.<sup>171</sup>

Although refusing to rule that "at this time polygraph test results should be generally admissible in evidence in criminal trials,"<sup>172</sup> the

Massachusetts court, in contrast to the Ninth Circuit, appears to be actively encouraging trial judges to admit polygraph evidence in their discretion after a defendant has consented to its use. The majority, responding to the dissenting opinions, rejected the suggestion to refer the entire polygraph dilemma to a commission for study:

[P]olygraphy has, for decades, been the subject of study, debate and controversy. It is too late in the day for just another study. Rather, the time is ripe for cautious judicial examination and evaluation . . . Actual testing in the courts is necessary before [a decision as to rejection or acceptance of the concept] can be made.<sup>173</sup>

Although the court might have at least indicated to the trial judges some of the situations in which an exercise of discretion in favor of admissibility would be appropriate,<sup>174</sup> the positive directive to proceed reasonably and carefully with such an exercise of discretion is itself a step in this direction. Unfortunately, a great deal of future litigation will be required to resolve the guidelines for determining how and when this discretion should be exercised.

It is implicit in the developing case law that regardless of the standards set by a court, the key to admissibility of polygraph evidence generally lies in the proponent attorney devoting the substantial amount of time that is necessary to prepare and present a sufficient foundation. The failure to make such a painstaking effort, or incorrect tactical decisions at the hearing, may not only result in inadmissibility in the immediate case, but may also perpetuate the line of poorly considered decisions rejecting polygraph testimony, thus foreclosing others from benefiting from the use of such evidence in the future.<sup>175</sup>

#### The Paradox of the Stipulation Cases

Even in jurisdictions where polygraph test results have been held inadmissible, some courts have admitted the identical evidence under the guise of a "stipulation."<sup>176</sup> However, at least one commentator has observed the paradox in this approach: "[B]y what logic should stipulated polygraph evidence be admissible when the same evidence without stipulation is barred?"<sup>177</sup> While a stipulation may, of course, admit facts, "it is obviously inoperative"<sup>178</sup> if it attempts to "change the law."<sup>179</sup>

Two positions have developed in response to this legal paradox. One, asserting that "a stipulation for admission does not increase the reliability of polygraph results,"<sup>180</sup> has logically resulted in holdings that the evidence should be excluded regardless of a stipulation.<sup>181</sup> A second response is represented by the rationale of *State v. Valdez*,<sup>182</sup> and meets the stipulation paradox by taking the position that the polygraph has attained such a level of accuracy as to justify admission upon stipulation.<sup>183</sup> However the distinction between "reliable enough for a stipulation" and "reliable enough for trial" is simply not meaningful. Cases admitting polygraph evidence on stipulation, like the cases excluding such evidence despite stipulation, recognize that it cannot be logically argued that any "foundation" as to accuracy



is achieved by stipulation.<sup>184</sup> Therefore, when a court admits polygraph evidence upon stipulation, it is probably because of a tacit belief in the accuracy of the technique.

A plausible rationale for admission by stipulation is that a stipulation at least expresses agreement of the parties to the competency of the examiner.<sup>185</sup> Since the ability of the examiner is the single most important variable affecting the accuracy of polygraph test results, such a stipulation is an indirect assurance of accuracy.<sup>186</sup> Rather than take this indirect approach, it would be better to recognize openly the accuracy of polygraphy and to restrict testimony to those "experts" who either (1) qualify for inclusion on a list of court appointed experts recognized to be competent,<sup>187</sup> (2) qualify under stringent state licensing schemes,<sup>188</sup> or (3) meet the standards suggested by Reid and Inbau for competent polygraph experts.<sup>189</sup>

#### The Policy Objections to the Admission of Polygraph Evidence: An Analysis and Response

Before analyzing the recent case of United States v. Wilson,<sup>190</sup> which raises all of the "major" misconceptions which can be termed objections to the admission of polygraph evidence, some of the relatively "minor" objections to admissibility may be noted.

First, it is asserted that polygraph evidence could present circumstances which violate a defendant's Fifth Amendment rights. This spectre is hardly a realistic possibility: it is clear that a defendant cannot be compelled to take a polygraph test,<sup>191</sup> nor can a prosecutor comment upon his failure or refusal to submit to such a test; case law requires a reversal for constitutional error if either of these situations occurs.<sup>192</sup>

One potential problem, discussed in United States v. Ridling<sup>193</sup> and noted in the Adams<sup>194</sup> case, is that, assuming that a defendant has voluntarily submitted to a polygraph examination conducted by an examiner of his own choice, whom the court finds to be competent, it would seem that the prosecution obviously has the right to request a second examination.<sup>195</sup> In fact, a procedure governing such an examination is set out in Ridling,<sup>196</sup> with the examiner chosen by agreement of the parties, or, if an agreement cannot be reached, by the court. This approach was utilized in the California Polygraph Bill proposed in the 1973 Senate session.<sup>197</sup>

A second objection is that polygraph testimony would largely consist of self-serving hearsay. In United States v. Stromberg,<sup>198</sup> Judge Kaufman noted: "But a machine cannot be examined or cross-examined; its 'testimony,' as interpreted by an expert is, in that sense, the most glaring and blatant hearsay."<sup>199</sup> It is submitted that this position is patently absurd; the logic would apply equally to radar, drunkometers, voice spectrographs, neutron analysis, or computers. The expert, not the machine, testifies. The results on the machine merely provide data upon which he bases his opinion. The defendant's own statements are not hearsay, since they are not being admitted for the "truth of the assertion," but rather merely for the limited purpose of forming the basis of the expert's opinion, as in psychiatry.<sup>200</sup>

It has even been suggested by one court that because of the "great reliability" of polygraph results, they should serve as an exception to the hearsay rule;<sup>201</sup> however, it is unnecessary to take that additional step in light of the acceptable rationale discussed above.

A third "minor" objection is that admission of polygraph evidence would require such prolonged adjudication in each case that it would overly burden the administration of justice.<sup>202</sup> In any jurisdiction where the reliability of the polygraph is judicially noticed (as, where admissibility has been permitted by an appellate court), all that is required in any particular case is the qualification and testimony of the expert examiner.<sup>203</sup>

Some critics have also contended that the delay between the criminal event and the examination lessens the accuracy and reliability of the test results. One polygraph authority has testified about two personal experiences involving lengthy time lapses (one of seven years, the other of thirty-four years) in which convicted and imprisoned criminals asserted their innocence but, after polygraph examinations indicated that they were not telling the truth, later confessed their actual guilt.<sup>204</sup>

Objections have been raised to the introduction of test results when the examination is conducted by a polygrapher selected by the defendant. Allegedly, examinations administered by a "friendly" examiner are less reliable, since the subject knows that unfavorable results will be confidential. Therefore, he has less fear that his deception will be detected, which will diminish the physiological responses to untruthful answers.<sup>205</sup> The theory was first propounded by Dr. Martin C. Orne, the government expert in United States v. Zeiger,<sup>206</sup> but his own research demonstrates that criminal defendants, tested by a so-called "friendly" examiner, are sufficiently motivated to ensure accurate results.<sup>207</sup>

Anyone who understands the control question technique recognizes that complete lack of motivation yields inconclusive rather than erroneous results. It is necessary to have substantial reactions to control questions in order to arrive at a decision that the subject is truthful; failure to respond leads only to a judgment of inconclusiveness, rather than error. The only scientific study of the "friendly" polygrapher problem, based upon records of examinations of criminal defendants, clearly established that there was no difference in the rates of deceptive, truthful, and inconclusive results when tests conducted for defense attorneys were compared to those administered for the police agencies.<sup>208</sup>

#### United States v. Wilson: The "Major" Objections

The Wilson case<sup>209</sup> raises the remainder of the important objections to admissibility of polygraph evidence. The court, however, cited no persuasive precedent or scientific studies<sup>210</sup> to support any of its conclusions.<sup>211</sup> In rejecting the polygraph evidence, the court asserted:

A fair statement is that while studies conducted by private and governmental organizations assess the validity and reliability of the technique at 70% to 95%,<sup>212</sup> the systematic research relating to the validity of polygraph is still in its formative period and is on-going.

. . . Like polygraphy, the physical sciences often rely on non-physical intellectual models . . . [b]ut . . . these processes are much more susceptible to controlled experimental verification.<sup>213</sup>

Although it is true that the polygraph technique was initially developed in the field, with scientific evaluation following,<sup>214</sup> numerous controlled systematic studies (described in some detail earlier)<sup>215</sup> have been recorded. For example, in the study by John Reid and Frank Horvath, the results, which established the polygraph's extremely high accuracy, were corroborated by the strongest possible objective evidence, actual confessions.<sup>216</sup> In the laboratory, D. T. Lykken evaluated the accuracy of the polygraph in excess of 93 percent in a situation in which the results were obviously susceptible of objective evaluation since Dr. Lykken knew which subjects had been told to pretend that they either had, or had not, committed a crime.<sup>217</sup> Moreover, it has been established that results in the field are even more accurate than those in the laboratory, since responses measured by the polygraph technique are more pronounced when the subject is highly motivated and the material involved is personal to the subject.<sup>218</sup>

Another objection raised by the Wilson court was that

polygraphy, albeit based on a scientific theory, remains an art with unusual responsibility placed on the examiner . . .

The subtleties of physiological and psychological reaction also result in divergence in interpretation of the polygraph charts and the consistency of reaction necessary to reach a definite conclusion.<sup>219</sup>

Wilson is totally incorrect to the extent that it suggests that interpretation of polygraph charts — as opposed, e.g., to analysis of handwriting or ballistics — is essentially subjective, varying from polygrapher to polygrapher. For example, in the United States Army, charts of all polygraph tests administered in the field are reevaluated by a Quality Control Office. Errors by the field examiners are discovered very rarely by the examiners reviewing the charts.<sup>220</sup> Presumably the examiners usually agree in their interpretation. Moreover, in an experiment by Gordon Barland of the University of Utah, five trained examiners reached almost identical conclusion in evaluating over 200 charts from over seventy subject examinees, even though the examiners knew nothing about the subjects and had only the charts and relevant questions on which to base their conclusions.<sup>221</sup>

Similarly, in the experiment by Reid and Horvath<sup>222</sup> the charts were evaluated with over 90 percent accuracy by seven experienced examiners who knew nothing about the particular subjects or the questions asked; they were told only where the relevant questions were located on the chart. Clearly the analysis of polygraph charts is not "subjective" when two competent polygraph examiners will almost always reach the same results<sup>223</sup> when interpreting charts.

A third objection of the Wilson court was based on speculation concerning the "limitations" of the technique, or more specifically, possibilities of

"beating" the test:

[T]he examiner must carefully watch for signs of psychosis, extreme neurosis, psychopathology, drunkenness and drugs . . . [S]peculation survives that a portion of the population, sometimes called "pathological liars," can "beat" the machine...

. . . The failure of a subject to react to a relevant question may be attributable to a yoga-like abstraction of the mind or perhaps even unusually low blood pressure, coupled with control of breathing. Alternatively, the subject may attempt to react artificially to irrelevant questions by hidden muscle contractions or self-infliction of pain, and by artificial conjuring of exciting images.<sup>224</sup>

Undoubtedly, the speculative possibilities which might affect the results of a scientific test could be massed against any discipline. The list of supposed deficiencies voiced against the polygraph technique contains factually incorrect information and "limitations" which, though having some validity, are so obscure or occur so rarely in the test situation that it is ridiculous to raise such arguments against admission of the polygraph.<sup>225</sup> According to one study, attempts to deceive the polygraph, even by those who are guilty, occur less than 20 percent of the time<sup>226</sup> and are easily detected.<sup>227</sup> Moreover, an experienced examiner has available specific procedures to counter every one of the attempts to "beat" the test.<sup>228</sup>

Experimentation has shown that modified yoga cannot be used to avoid detection;<sup>229</sup> the very few persons in the Middle East and Orient who can alter their heart and respiration are relatively easy to detect.<sup>230</sup> Attempts at controlled breathing are also easily detected and overcome by the examiner.<sup>231</sup>

Although there is a conflict as to whether hidden muscle contractions can affect the results of polygraph tests, this countermeasure is often detectable.<sup>232</sup> Self-inflicted pain can result in artificial responses, but it can also be detected.<sup>233</sup> There is a conflict as to whether one can affect polygraph results by conjuring up exciting images,<sup>234</sup> and this tactic, if effective, is difficult to detect.<sup>235</sup> In any event, such countermeasures would not necessarily result in a guilty man passing the polygraph, but might merely cause an "inconclusive" test result.<sup>236</sup> Therefore, even if, arguendo, the fears of the Wilson court materialize and, in a rare case, a subject manages to "beat" the examiner, the resulting error masks "detection" and therefore guilt. It would never involve the greatest concern of a system dedicated to the presumption of innocence — the conviction of a person who was not guilty.<sup>237</sup>

As for persons suffering from psychosis, neurosis, drunkenness, and drugs, Professor Reid has found that, if they are afflicted enough to affect the test, they are easily spotted in a pretest interview by a competent examiner.<sup>238</sup> In fact, studies indicate that use of tranquilizers or stimulants increases the probability of detection.<sup>239</sup> The dreaded "pathological liar" (if such a psychiatric category exists at all) hardly constitutes an argument

against admission.<sup>240</sup> Research by Dr. Raskin has shown that psychopaths are as easy to detect in deception as other criminal subjects.<sup>241</sup> Certainly, infinitely more "liars" sway the hearts of the jury from the stand than could ever deceive a polygraph.

The Wilson court's fourth objection concerned "[t]he absence of national standards for the education of polygraph examiners . . . [I]t is admitted that there exist numerous incompetent examiners."<sup>242</sup> As stressed throughout this article and by numerous courts, the importance of a qualified examiner cannot be overestimated since a "truly qualified polygraph examiner can eliminate or prevent test errors arising from an unfit subject or improper examination conditions . . . "<sup>243</sup> Although there is no doubt that there are incompetent examiners, just as there are incompetent physicians, one hardly need draw the conclusion that the courts are incapable of insuring that only qualified polygraph examiners are permitted to testify. The DeBetham court had no doubt that the competence of examiners could be determined without any undue consumption of time through proper examination and cross-examination;<sup>244</sup> and the Massachusetts court in Commonwealth v. A Juvenile felt that this determination could be satisfactorily made "through close scrutiny by the trial judge of an examiner's qualifications" and by highly motivating the defendant to assure the reliability of the expert "by requiring the defendant to agree in advance (with all the proper [constitutional] safeguards) to the results of a polygraph test [being admitted in the case]."<sup>245</sup>

Even Wilson implies that states with stringent licensing procedures<sup>246</sup> would not face any substantial problems as to the quality of experts.<sup>247</sup> However, even without a licensing system, clear standards for qualification as an expert have been proposed by recognized authorities and have been embodied in judicial opinion.<sup>248</sup> Moreover, appointment of experts from either an approved court list<sup>249</sup> or by stipulation of the parties<sup>250</sup> will help insure competent experts. Although the qualification of expert polygraphers is a serious concern, it is easily dealt with through procedures readily available to the court.<sup>251</sup>

Another objection voiced by the Wilson court concerned "the disproportionate influence the polygraph examination evidence inevitably will exercise . . . The spectre of 'trial by polygraph' replacing trial by jury is more than a felicitous slogan."<sup>252</sup> Of course, when courts have admitted polygraph test results they have instructed the jury that the result is not to be considered evidence of innocence or guilt, but is only to go to the credibility of the witness, to be weighed with the other evidence, and to be subjected to the same critical standards as other expert opinion.<sup>253</sup>

To those who fear "usurpation" of the jury function through undue reliance by the jury on polygraph evidence, there are three answers. The first is that if a polygraph examination conducted by a competent examiner is as accurate as indicated,<sup>254</sup> it merits such substantial reliance in a process whose primary purpose is the search for "truth." The second is that recognized experts in the field agree that the administration of justice would not collapse, but would improve, with the introduction of polygraph evidence.<sup>255</sup> Jurors would not be overawed by the polygrapher's testimony, since he, like any other expert, can be subjected to careful and searching cross-examination.<sup>256</sup>

Indeed, the Massachusetts Supreme Judicial Court's recent opinion stressed the importance of potential cross-examination by "both parties, depending on the outcome of the polygraph results and by whom the expert is called as a witness ... regardless of who originally selected the expert witness."<sup>257</sup>

The third answer is that the concern for the "overwhelming impact" of the polygraph is greatly exaggerated and totally unjustified when viewed in the context of several actual cases in which polygraph evidence was admitted.

The suggestion that juries will follow blindly after polygraph results is an unfounded fear. Juries are all too capable of disregarding any evidence to which they do not take a shine. In *Commonwealth v. George O. Edgerly*, No. 95459, Middlesex Superior Court, 1961, polygraph test results adverse to the defendant were admitted by agreement of counsel, but the jury acquitted the defendant of murder.<sup>258</sup>

In *United States v. Grasso*,<sup>259</sup> polygraph evidence was admitted after a proper foundation had been established. Following a verdict of not guilty, the jury was interviewed regarding their comprehension of the expert testimony and its effect on their decision.<sup>260</sup> The responses of the jurors are enlightening:

These eight jurors told us that they were impressed with the foundation testimony and were convinced that the polygraph did what it purported to do, i.e., to verify the truthfulness of a response to any given question. However, despite their belief in the efficacy of the polygraph as a truth verifier, they were somewhat at a loss regarding what to do with the impact of the testimony of Mr. Charles H. Zimmerman on the test result itself. Therefore, they resolved to put aside the test results and see if they could not arrive at a verdict by considering the other evidence that was present at the trial and, should they be unable to do so, they would then turn to the polygraph test results as an additional piece of evidence to consider. Well, the fact of the matter is that they never got to the polygraph test results in so far as taking any part in their deliberations because they were able to arrive at a verdict of not guilty based upon the other evidence in the case. However, each of the eight Jurors that we interviewed was fairly positive that had the case been closer, i.e., had the outcome been in doubt, the polygraph tests standing by themselves and the integrity of the testimony would have been sufficient to raise a reasonable doubt in their minds and, consequently, they would had to have voted not guilty.

The interviews that we had with the Jurors in the *Grasso* case would seem to refute the often heard comment that the polygraph will replace the Jury or usurp the Jury's functions, or somehow be so prejudicial in its weight and impact that the

Jury will disregard all other evidence and go on the polygraph test results alone. Here we have direct proof that, at least in one case, not only did the polygraph test results not usurp the Jury's function but they were able to handle it in much the same manner they did all other evidence in the case.

They certainly were not overawed by it, they certainly did not feel that the polygraph test results by themselves were demonstrative of the guilt or innocence of Mr. Grasso and I think they handled the polygraph evidence in a very intelligent manner and certainly if they are at all representative of Jurors who have to deal with polygraph test results, then I think that we should be heartened to learn that they can consider such evidence and accord it whatever merit it deserves and treat it, perhaps in the same way as they do all other scientific evidence.<sup>261</sup>

#### Proposals for a Comprehensive Legislative Response to Polygraph: The California Experience

On January 29, 1973, Senator Arlen Gregorio<sup>262</sup> introduced Senate Bill 119<sup>263</sup> in the California Senate. Although the bill was eventually defeated in the eleven man California Assembly Committee on the Judiciary (having been approved by the corresponding thirteen man committee in the Senate and sent to the Senate floor on May 3, 1973, where it was passed on May 9, 1973), it should be carefully examined because of its comprehensive treatment of the various problems related to the admissibility of polygraph evidence. The bill, or an amended version of it, will probably be reintroduced at the next term of the legislature.<sup>264</sup> If passed, it will undoubtedly serve as a model for other states and for courts considering procedures governing problems related to admissibility.

Senate Bill 119 can best be characterized as a legislative attempt to deal with the admission of polygraph evidence and related problems in a systematized, coherent fashion. Confronted with increasing judicial acceptance of the polygraph,<sup>265</sup> the legislature appropriately sought this systematic approach rather than a piecemeal, case-by-case judicial resolution of the problems associated with the admissibility of polygraph test results.<sup>266</sup>

The bill deals with the numerous problems which have previously been discussed. It clearly expresses an intention to favor the use of polygraph evidence as a reliable credibility-detecting device and therefore to create a weapon against the wave of perjury confronting the courts.<sup>267</sup> In addition, the bill confronts the Fifth Amendment problems and objections based upon invasion of privacy by establishing that a party must consent to taking a polygraph examination.<sup>268</sup> The polygraph cannot be used unless the party testifies,<sup>269</sup> and no mention may be made of a party's failure to submit to a polygraph examination.<sup>270</sup> Moreover, the great "consumption of judicial time" required to establish a foundation for admissibility is avoided by this legislative recognition of the accuracy of a properly administered polygraph examination.<sup>271</sup>

Two features of S.B. 119 attempt to cope with the major criticism of admitting polygraph evidence, the lack of qualification of many polygraphers.<sup>272</sup> The first requires that anyone desiring to introduce polygraph evidence must consent to a second examination by a stipulated examiner or by a court appointed expert if the parties fail to agree on an examiner.<sup>273</sup> This second "neutral" expert will both assure quality and avoid a battle of charlatans. Further, if the two experts disagree, the court may refuse admission of the conflicting testimony in its discretion to exclude unduly prejudicial or confusing polygraph evidence.<sup>274</sup>

The second safeguard in S.B. 119 is the establishment of standards and methods for qualifying experts. In the version of S.B. 119 which passed the Senate, qualification of polygraph experts was left to the court on an ad hoc, case-by-case basis.<sup>275</sup> Undoubtedly recognizing that such a procedure will lead to an undue consumption of judicial time and a probable lack of uniformity in the quality of experts, the revision of S.B. 119 provided for a five member panel, appointed by the Judicial Council, to determine which polygraph examiners were qualified to testify in court.<sup>276</sup> The panel was to be composed of four trial court judges or former trial court judges and one attorney<sup>277</sup> who would have made their determination as to the qualifications of examiners by applying procedures and standards established by the Judicial Council.<sup>278</sup> Obviously, the success of such a project would depend on the council's enactment of viable yet stringent limitations and standards, and on the quality of the screening function performed by the panel. This would also further the legislative intent that examiners who qualify under this section "be of the very highest professional competence and integrity."<sup>279</sup> In any event, S.B. 119 is a necessary and a well thought out experiment in the use of polygraph examinations in court.<sup>280</sup>

### Conclusion

The reliability and validity of the polygraph technique and its probative value as evidence of credibility can no longer be doubted. What remains is the task of helping the judicial system free itself of erroneous conceptions about what Justice Traynor called a "lie detector."<sup>281</sup> In 1923, the year of the Frye case, Dean Wigmore foresaw: "'If there is ever devised a psychological test for the valuation of witnesses, the law will run to meet it.'"<sup>282</sup> It has taken a half-century, but polygraphy and the law at last may be about to meet each other.

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### Footnotes:

<sup>1</sup>See, e.g., Note, Effect of Mapp v. Ohio on Police Search-and-Seizure Practices in Narcotics Cases, 4 COLUM. J. L. & SOC. PROB. 87, 103 (1968).

<sup>2</sup>People v. West, 3 Cal. 3d 595, 602, 477 P.2d 409, 312, 91 Cal Rptr. 385, 388 (1970).

<sup>3</sup>Id., 477 P.2d at 412, 91 Cal. Rptr. at 388.

<sup>4</sup>But see, e.g., Bumper v. North Carolina, 391 U.S. 543 (1968): "[N]o sane man who denies his guilt could actually be willing that policemen search his room for contraband which is certain to be discovered." Id. at 549, quoting



Higgins v. United States, 209 F.2d 819, 820 (D.C. Cir. 1954).

<sup>5</sup>Lego v. Twomey, 404 U.S. 477, 492 (1972) (dissenting opinion).

<sup>6</sup>Id. <sup>7</sup>273 Cal. App. 2d 645, 78, Cal. Rptr. 400 (1969).

<sup>8</sup>Id. at 649, 78 Cal. Rptr. at 403. <sup>9</sup>Id.

<sup>10</sup>Id. at 650, 78 Cal. Rptr. at 403.

<sup>11</sup>The appellate court found that the trial court did not have to believe either witness. As the search had been made without a warrant, the burden of justifying the procedure rested with the prosecution; the factfinder's inability to determine which of the witnesses was telling the truth should have resulted in a holding that the prosecution had failed to sustain its burden. Id.

<sup>12</sup>Id. at 651, 78 Cal. Rptr. at 404. <sup>13</sup>Id. at 650, 78 Cal. Rptr. at 403.

<sup>14</sup>Id. at 650 n.4, 78 Cal. Rptr. at 403 n.4. See also Theodor v. Superior Court, 8 Cal. 3d 77, 501 P.2d 234, 104 Cal. Rptr. 226 (1972).

<sup>15</sup>384 U.S. 436, 505 (1966) (dissenting opinion).

<sup>16</sup>407 U.S. 143, 144-45 (1972).

<sup>17</sup>Williams v. Adams, 436 F.2d 30, 36 n.4 (2d Cir. 1970) (dissenting opinion), rev'd on rehearing, 441 F.2d 394 (2d Cir. 1971), rev'd, 407 U.S. 143 (1972).

<sup>18</sup>People v. Superior Court (Kiefer), 3 Cal. 3d 807, 827-28 n.13, 478 P.2d 449, 462-63 n. 13, 91 Ca. Rptr. 729, 742-43 n.13 (1970). See also United States v. Marshall, 488 F.2d 1169 (9th Cir. 1974), where the appellate court overruled the trial court's fact-finding as to the veracity of the narcotics agents and branded them as perjurers: "These appeals present a distressing picture of the notions of the agents of the Bureau of Narcotics and Dangerous Drugs . . . who were involved in the case about the manner in which they are to perform their duties and their obligations toward citizens under the Constitution . . . Two of the agents seem quite willing to make false affidavits, in which facts are distorted to achieve a result, such as a finding that seized evidence was in plain view." Id. at 1170-71.

<sup>19</sup>409 U.S. 33 (1972).

<sup>20</sup>Oral Argument for the State of Illinois as Amicus Curiae, California v. Krivda, 12 Crim. L. Rptr. 4034, 4036 (1972). Three judges and a New York state prosecutor have argued that the burden of proof should be shifted to the state in so-called dropsy cases because of prevalent police perjury. People v. Barriso, 28 N.Y. 2d. 361, 369, 270 N.E.2d 709, 714, 321 N.Y.S.2d 884, 890 (1971) (Fuld, C.J., dissenting). But perjury prosecutions are rare; one judge said he would have referred a witness to the district attorney for perjury investigation except for the fact that the witness was a police officer. People v. Carter, 26 Cal. App. 3d 862, 875, 103 Cal. Rptr. 327, 335 (1972).

<sup>21</sup>No. A176965 (Super. Ct. Los Angeles County, Cal. Nov. 6, 1972), 12 Crim. L. Rptr. 2133 (1972). After becoming convinced that the decision of the trial court would be affirmed and established binding appellate authority supporting the admissibility of polygraph test results, the prosecution abandoned its appeal. 14 Crim. L. Rptr. 2420 (1974). See notes 65-69 & accompanying text infra.

<sup>22</sup>12 Crim. L. Rptr. at 2134.

<sup>23</sup>The court concludes that the polygraph method of assisting in the search for truth should be employed to determine the ultimate issue as well as collateral issues such as search and seizure legality, the question presented directly in Cutler.

<sup>24</sup>For cases involving the problem of perjury relating directly to substantive questions of guilt or innocence, e.g., Napue v. Illinois, 360 U.S. 264 (1959) (murder conviction reversed, principal prosecution witness committed perjury); Mesarosh v. United States, 352 U.S. 1 (1952) (conviction reversed, principal witness committed perjury in several instances); Hysler v. Florida, 315 U.S. 411 (1942) (denial of rehearing on writ of error coram nobis affirmed, where proof of perjury inconclusive); United States v. Basurto, 497 F.2d 781 (9th Cir. 1974) (conviction reversed, government's chief witness committed perjury before grand jury); United States v. Chisum, 436 F.2d 645 (9th Cir. 1971) (narcotics conviction reversed when narcotics agents, who were principal witnesses, were convicted of perjury); United States v. Polisi, 416 F.2d 573 (2d Cir. 1969) (robbery conviction reversed, newly discovered evidence established that principal government witness committed perjury); Curran v. Delaware, 259 F.2d 707 (3d Cir. 1958) (habeas corpus granted as to murder conviction when officers destroyed statements given by defendants and perjured themselves by claiming that no such exculpatory statements had been made); Gondron v. United States, 242 F.2d 149 (5th Cir. 1957) (conviction reversed, government agreed that key witness testified falsely); Imbler v. Cravens, 298 F.Supp. 795 (C.D.Cal. 1969), aff'd, 424 F.2d 631 (9th Cir.), cert. denied, 400 U.S. 865 (1970).

<sup>25</sup>See generally Cohen, Police Perjury: An Interview with Marcus Garbus, 8 CRIM. L. BULL. 363 (1972); Grano, A Dilemma for Defense Counsel: Spinelli-Harris Search Warrants and the Possibility of Police Perjury, 1971 U. ILL. L.F. 405; Sevilla, The Exclusionary Rule and Police Perjury, 11 SAN DIEGO L. REV. 839 (1974); Comment, Police Perjury in Narcotics "Dropsy" Cases: A New Credibility Gap, 60 GEO. L.J. 507 (1971).

<sup>26</sup>At present some courts require witnesses to undergo polygraph examinations in noncriminal cases. See Pfaff, The Polygraph: An Invaluable Judicial Aid, 50 A.B.A.J., 1130 (1964). Judge Pfaff's experience is borne out by Ferguson, Polygraph V. Outdated Precedent, 35 TEXAS B.J. 531 (1972) [hereinafter cited as Ferguson]. See also Sevilla, The Exclusionary Rule and Police Perjury, 71 SAN DIEGO L. REV. 839, 873-74 (1974) (advocating use of test results at suppression hearings, to eliminate perjury).

Mr. Sevilla, a nationally recognized authority on polygraph evidence, has recently published a guide to the introduction of such testimony at trial. Sevilla, Polygraph Evidence: The Case for Admissibility and Suggestions for Introduction, 2 CRIM. DEFENSE (April 1975).

<sup>27</sup>United States v. DeBetham, 348 F. Supp. 1377, 1384 (S.D. Cal.), aff'd. 470 F.2d 1367 (9th Cir. 1972), cert. denied, 412 U.S. 907 (1973).

<sup>28</sup>The accuracy of the measurements themselves cannot be challenged if the instrument is working properly. However, the information is meaningless in isolation. Given form and content by reference to a specific examination, the information on physiological changes becomes a part of a system subject to error. See generally J. Reid and F. Inbau, TRUTH AND DECEPTION 1-10 (1966) [hereinafter cited as Reid and Inbau].

<sup>29</sup>The expert's opinion only goes to the veracity of the person's stated beliefs. "Clearly, nothing in the entire technique can show the underlying empirical truth in the sense of the facts occurring in the past; but only whether the person examined himself believed his answers." C. McCormick, EVIDENCE § 207, at 505 (2d ed. 1972) (footnote omitted) [hereinafter cited as McCormick]. As described by one lawyer-polygrapher: "The polygraph instrument does not detect lies in the strict sense at all. If it 'detects' anything, it is the truth. Its application is quite narrow. The instrument does not believe or disbelieve as a juror must do. Its recordings only distinguish between the whole truth and something less than the whole truth, and there its function ends as a diagnostic aid. It cannot testify, but it can be used to provide the basis for expert opinion." Ferguson, supra note 26, at 536.

<sup>30</sup>350 F.Supp. 90 (E.D. Mich. 1972). <sup>31</sup>Id. at 92.

<sup>32</sup>348 F.Supp. 1377 (S.D. Cal.), aff'd. 470 F.2d 1367 (9th Cir. 1972), cert. denied, 412 U.S. 907 (1973).

<sup>33</sup>348 F. Supp. at 1291 (footnote omitted).

<sup>34</sup>Barland & Raskin, Detection of Deception, in ELECTRODERMAL ACTIVITY IN PSYCHOLOGICAL RESEARCH 435 (W. Prokasy & D. Raskin eds. 1973) [hereinafter cited as Barland & Raskin].

<sup>35</sup>See generally Santa, The Polygraph, in R. Cipes, CRIMINAL DEFENSE TECHNIQUES ch. 66 (1974). Cleve Backster, director of an outstanding polygraph school in New York and San Diego who had administered over 50,000 examinations and developed the "Backster Zone of Comparison Test," provided a thorough explanation of how a polygraph operator actually conducts an examination, in his testimony at the court martial of Captain E. Medina. See C. Zimmerman, THE POLYGRAPH IN COURT 17-18 (1972) [hereinafter cited as POLYGRAPH IN COURT].

Backster explains that the first step in conducting a polygraph test is a "pre-examination reliability estimate" to determine whether the operator has adequate case information and thereby "distinctness of issue." If this hurdle is passed, the operator will then start to construct test questions. First, he must formulate at least two "relevant questions," which are very direct and pointed to the central "target" issue; "nonambiguous questions . . . where semantics is quite an issue . . . so that the person taking the test will understand the question." To assume that the subject understands the questions he is encouraged to become involved in their formulation; they are read to him, and he is asked to explain them.

The next step is the formulation of "control" or "probable lie" questions. These are in a category similar to the "relevant questions," but must not "in any way usurp or detract from the reaction to the relevant question if the person were attempting deception"; the control questions are then placed close to the relevant questions in the testing structure. These questions are not directed at the subject matter of the examination and permit the examiner to compare the reactions of examinee. Then a series of "neutral questions," or those of which the examiner feels certain of the answer (as, "Is your first name John?") are selected, to be used "merely to orient the individual taking the test to any question being asked regardless of the type."

All of the questions are then carefully reviewed with the subject, again to insure comprehension and pertinence to the examination; "under no circumstances is a question injected into the testing" that has not been reviewed. This

policy of avoiding surprise is directed toward the elimination of the subject's fear that some other incident will be raised, which might undermine the reliability of the responses to the relevant questions. Although the exact wording of the questions is known to the examinee, the actual order in which they will be asked is not revealed.

The test is then administered, at least twice and usually three or four times "in order to have a consistency . . . as far as the presence of or a lack of reaction on the relevant questions." Backster's system involves a numerical scoring method with "at least 18 separate opportunities to determine truth or deception during the procedure." This technique prevents a distortion of the test result by any potential extraneous reaction to a single question. The charts are interpreted by the examiner, and the result is "a reading that would have to fall into three possibilities . . . that in the opinion of the examiner, the person was being deceptive, that they were being truthful, or that the test was inconclusive." Id.

<sup>36</sup>Reid & Inbau, supra note 28, at 1-2. See generally id. at 1-10. Prof. Fred Inbau, outspoken proponent on behalf of law enforcement, has been called "possibly the foremost authority on the subject" of truth detection. People v. Davis, 343 Mich. 348, 370, 72 N.W.2d 269, 281 (1955).

<sup>37</sup>But see McCormick, supra note 29, at 505: "No one could reasonably content that the [polygraph] test should be conducted in the courtroom at the trial."

<sup>38</sup>Frye v. United States, 293 F. 1013 (D.C. Cir. 1923). The setting of Frye is taken not from the two-page reported opinion, but from Ferguson, supra note 26. Although Frye is the first reported opinion, the initial instance of use of the blood pressure method of truth detection in a court of law appears to have been in Los Angeles in 1913. See 3A J. Wigmore, A TREATISE ON THE ANGLO-AMERICAN SYSTEM OF EVIDENCE IN TRIALS AT COMMON LAW § 999, at 949 n.3 (Chadbourn rev. 1970).

<sup>39</sup>People v. Kenny, 167 Misc. 51, 3 N.Y.S.2d 348 (Sup. Ct. Queens County 1938). The Kenny foundation consisted of testimony from a person who chaired a university psychology department, held a degree in philosophy and a doctorate in physics, had been a professor of physiology, and was also a priest. Judge Colden credited his claim of 6,000 examinations and nearly perfect interpretations of truth. The same year, the New York Court of Appeals refused to accept polygraph testimony, but understandably so because unlike Kenny, the "record [was] devoid of evidence tending to show a general scientific recognition that the pathometer possesses efficacy." People v. Forte, 279 N.Y. 204, 206, 18 N.E.2d 31, 32 (1938); see Wicker, The Polygraphic Truth Test and the Law of Evidence, 22 TENN. L. REV. 711, 716-17 (1953). Moreover, Kenny, manifested a surprising prescience in accepting an opinion based solely on skin responses during questioning. In the field of psychophysiology it has recently been observed: "It is a well-established fact that measures of electrodermal activity can discriminate between truth and deception at levels far beyond chance." Barland & Raskin, supra note 34, at 420.

<sup>40</sup>People v. Houser, 85 Cal. App. 2d 686, 691, 694-95, 193 P.2d 937, 940, 942 (1948). The Houser court focused on a stipulation that the expert opinion could be admitted into evidence. See Note, 15 ALA. L. REV. 248, 255 (1962). See notes 176-89 & accompanying text infra. Cases have drawn "a valid distinction in admitting polygraph evidence only pursuant to stipulations" according

to State v. Ross, 7 Wash. App. 62, 68, 497 P.2d 1343, 1347 (1972), but the nature of the distinction is not intimated. See Herman v. Eagle Star Ins. Co., 283 F.Supp. 33, 35-40 (C.D. Cal. 1966), aff'd. 396 F.2d 427 (9th Cir. 1968).

<sup>41</sup>See, e.g., People v. Russel, 69 Cal. 2d 187, 198-200, 443 P.2d 794, 802-03, 70 Cal. Rptr. 210, 218-19, cert. denied, 393 U.S. 864 (1968) (abuse of discretion to exclude psychiatric evidence as to emotional and mental status of complaining witness for purposes of impeaching credibility); Cornell v. Superior Court, 52 Cal. 2d 99, 101, 338 P.2d 447, 448 (1959) (mandate to compel in-custody examination by hypnotist regardless of whether evidence ultimately is deemed admissible; expertise established; method recognized by medical authorities); People v. Cartier, 51 Cal. 2d 590, 600-01, 335 P.2d 114, 121-22 (1959) (error to exclude expert opinion as to sanity formed while patient under influence of sodiumpentothal); People v. Jones, 42 Cal. 2d 219, 225-26, 266 P.2d 38, 43 (1954) (expert opinion based upon sodium-pentothal interview admissible not to prove facts asserted but for analysis of character). See also McCormick, supra note 29, at 510.

<sup>42</sup>People v. Carter, 48 Cal. 2d 737, 312 P.2d 665, 674 (1957). The Carter court held, inter alia, that it was error for a witness to testify to his willingness to clear himself of suspicion through a polygraph examination, thus implying that the defendant had not been willing to take such a test. Although the tests had sufficient probative value to garner a conviction in People v. Houser, 85 Cal. App. 2d 686, 193 P.2d 937 (1948), the Carter dictum preferred the approach of People v. Wochnick, 98 Cal. App. 2d 124, 126-28, 219 P.2d 70, 71-72 (1950) (apparently coerced polygraph examination without any foundation concerning polygraph's reliability; the court's understanding is indicated by its calling a four-measurement polygraph a systolic blood pressure device), and People v. Porter, 99 Cal. App. 2d 506, 510, 222 P.2d 151, 154 (1950) (in-chambers request at conclusion of testimony for the court to provide a polygraph examination for defendant; record devoid of reference to the state of the science of polygraphy). It appears that no reported California appellate case involving a polygraphy issue has had the benefit of any evidence or findings as to the reliability and validity of the procedure. See, e.g., People v. Schiers, 19 Cal. App. 3d 102, 108-13, 96 Cal. Rptr. 330, 333-34 (1971). With the abandonment of the appeal in People v. Cutler, no California appellate court to date has been presented with a factual record from which the court could properly determine whether or not polygraph test results should be admissible; however, an appeal is now pending in People v. Adams, No.M69424 (Alhambra Mun. Ct. Los Angeles County, Cal. May 14, 1974), which presents a complete factual record establishing the validity and reliability of a properly administered polygraph examination. See notes 65-69 and accompanying text infra.

<sup>43</sup>Schmerber v. California, 384 U.S. 757, 764 (1966); see Bowen v. Eyman, 324 F. Supp. 339, 341 (D. Ariz. 1970); Note, Constitutional Law: Supreme Court Delineates in the Relationship Between the Fourth and Fifth Amendments, 1967 DUKE L.J. 366, 381.

<sup>44</sup>United States v. Wainwright, 413 F.2d 796, 802-03 (10th Cir. 1969), cert. denied, 396 U.S. 1009 (1970). Quoting Wigmore, Chief Judge Murrah suggested the condition that "an expert testify 'that the proposed test is an accepted one in his profession and that it has a reasonable measure of precision in its indications.'" 413 F.2d at 802. See also Wainwright v.

United States, 448 F.2d 984, 987 (10th Cir. 1971) ("The original failure to establish a foundation appears to be an evidentiary problem already decided and not a constitutional question.")

<sup>45</sup>United States v. Zeiger, 350 F.Supp. 685 (D.D.C.), rev'd per curiam, 475 F.2d 1280 (D.C. Cir. 1972); United States v. Ridling, 350 F. Supp. 90 (E.D. Mich. 1972); United States v. DeBetham, 348 F. Supp. 1377 (S.D. Cal.), aff'd, 470 F.2d 1367 (9th Cir. 1972), cert. denied, 412 U.S. 907 (1973).

<sup>46</sup>See notes 54-61, 70-75 & accompanying text infra. On the measurements of polygraph instruments, see Reid & Inbau, supra note 28, at 3-4. Another noteworthy decision is United States v. Hart, 344 F. Supp. 522 (E.D.N.Y. 1971), where Judge Judd found that the government was required to disclose to the defense all relevant material concerning a pretrial polygraph examination which had indicated the key government witness was not telling the whole truth. Curiously Hart thwarted a defense effort to submit polygraphic evidence under the dubious authority of United States v. Bando, 244 F.2d 833, 841 (2d. Cir.), cert. denied, 355 U.S. 844 (1957). In Bando, one paragraph is devoted to expressing agreement with the trial court that there is a difference of opinion as to the scientific validity of the polygraph technique, and that scientists and people in general do not believe that polygraphy is reliable. This utterly erroneous conclusion, propounded without any evidentiary presentation in the trial court, was expressed by the court of appeals, without citation, and now serves as precedent to preclude probative evidence from district court consideration.

<sup>47</sup>United States v. DeBetham, 470 F.2d 1367 (9th Cir. 1972), cert. denied, 412 U.S. 907 (1973).

<sup>48</sup>People v. Cutler, No. A176965 (Super. Ct. Los Angeles County, Cal. Nov. 6, 1972), 12 Crim. L. Rptr. 2133 (1972).

<sup>49</sup>United States v. Gonzalez, No. 13089 (S.D. Cal. 1973) (Enright, J.)

<sup>50</sup>S.B. 119 (1973). The bill to amend the California Evidence Code was passed in the senate on May 9, 1973, but was not reported out of committee in the assembly.

<sup>51</sup>Commonwealth v. A Juvenile, 313 N.E.2d 120 (Mass. 1974).

<sup>52</sup>Statement at Oral Argument, Mar. 4, 1974, United States v. Covarrubias, No. 73-3242 (9th Cir. Mar. 12, 1974).

<sup>53</sup>For a summary of numerous scientific experiments establishing the validity and reliability of polygraphs, see notes 76-88, 214-23 & accompanying text infra.

<sup>54</sup>348 F.Supp. 1377 (S.D. Cal.) (Thompson, J.), aff'd, 470 F.2d 1367 (9th Cir. 1972), cert. denied, 412 U.S. 90 (1973).

<sup>55</sup>348 F. Supp. at 1385, quoting Reid & Inbau, supra note 28, at 4 (brackets in original).

<sup>56</sup>348 F. Supp. at 1384. See also POLYGRAPH IN COURT, supra note 35, at 23-24 (testimony of Cleve Backster):

[Q:] "[C]an [you] tell the court anything about the development in the past 20 years in the field of polygraph examinations that might have a bearing on the wisdom of using such information in an evidentiary capacity?"

[A:] "The primary task was that of trying to combine and consolidate the various techniques in the field into a more or less standardized polygraph technique. And I think as far as the evolvement of polygraph technique is concerned, there has been a fantastic evolvement. In other words, the test technique originally involved just a relevant question. You just asked the person if they did it, whatever it was, and there was not skillful use of any control procedure whatsoever and this went through a number of years in the polygraph. And then, in fact, through the introduction of the Reid Control . . . we started to really enhance the validity of the polygraph by having a comparison of the person's capability of reaction located very close by the relevant question being asked during the polygraph procedure. And I would say that the validity in polygraph really rose to fantastic heights with the introduction of this one factor. And since then we've gone to a great extent . . . toward standardization so that one examiner can read another examiner's charts . . . Where we are utilizing standardized forms to where even through telephonic communications we know what the other examiner is speaking of. And my personal stress has been that this standardization has been very necessary to enhance professionalization of the polygraph and raise the reliability of it."

<sup>57</sup>348 F. Supp. at 1384-85; see POLYGRAPH IN COURT, supra note 35, at 23 (testimony of Cleve Backster). Mr. Backster testified that he could recall only one or two instances, out of the thousands of examinations run by himself or under his supervision, in which the examiner's opinion as to the truthfulness or deception of the subject was later demonstrated to have been erroneous. He characterized these as "isolated examples, but fortunately they're far enough back . . ."

<sup>58</sup>Reid & Inbau, supra note 28, cited in United States v. DeBetham, 348 F. Supp. 1377, 1384-85 (C.D. Cal. 1973). A number of authorities have reached similar conclusions as to the highly accurate results of a properly administered polygraph examination. See, e.g., Arthur & Caputo, INTERROGATION FOR INVESTIGATION 214 (1959) (1% error); Cureton, A Consensus as to the Validity of Polygraph Procedures, 22 TENN. L. REV. 728, 729 (1953) (3% error); Pfaff, The Polygraph: An Invaluable Judicial Aid, 50 A.B.A.J. 1130, 1132 (1964) (1% error); Wicker, The Polygraphic Truth Test and the Law of Evidence, 22 TENN. L. REV. 711, 713 (1953) (2-5% error); Note, The Polygraph and Probation, 9 IHADO L. REV. 74, 76 (1972) (5% error).

<sup>59</sup>348 F. Supp. at 1389. <sup>60</sup>Id. <sup>61</sup>Id. <sup>62</sup>470 F.2d at 1368.

<sup>63</sup>No. A176965 (Super. Ct. Los Angeles County, Cal. Nov. 6, 1972), 12 Crim. L. Rptr. 2133 (1972).

<sup>64</sup>Id., 12 Crim. L. Rptr. at 2134 (emphasis added).

<sup>65</sup>No. M69424 (Alhambra Mun. Ct. Los Angeles County, Cal. May 14, 1974). For other California cases involving polygraph admissibility, see note 42 supra.

<sup>66</sup>Los Angeles Daily Journal, Jan. 2, 1974, at 1, col. 2. <sup>67</sup>Id.

<sup>68</sup>The author was given this information by a "confidential, reliable informant," whose identity he is not free to reveal.

<sup>69</sup>Los Angeles Daily Journal, Jan. 2, 1974, at 1, col. 2.

<sup>70</sup>350 F. Supp. 685 (D.D.C.), rev'd per curiam, 475 F.2d 1280 (D.C. Cir. 1972).

<sup>71</sup>Numerous expert witnesses testified, including John Reid. Reid's study in conjunction with Frank Horvath, The Reliability of Polygraph Examiner Diagnosis of Truth and Deception, 62 J. CRIM. L. C. & P. S. 276 (1971), and book with Fred Inbau, Reid & Inbau, supra note 28, had been relied upon by the district court in United States v. DeBetham, 348 F. Supp. 1377, 1381, 1385 (S.D. Cal. 1972). Lynn Marcy, a polygraph examiner with 15 years experience, stated that of the 30% of these 8,000 cases where the conclusions of his examination were subject to some form of verification (e.g., subsequent confession, admission, or other evidence), he was aware of only six errors. The accuracy of the polygraph technique was well over 90%. 350 F.Supp. at 689-90.

Martin Orne, a respected polygraph authority and professor of psychology and psychiatry at the University of Pennsylvania, supposedly testified in support of the government's contention that the polygraph results should be excluded; however, he admitted that, according to his research and experience, the polygraph accuracy rate was 85% or higher. Id. at 689. David Raskin, professor of psychology at University of Utah and researcher in psychophysiology, testified that his laboratory experiments, though considerably less accurate than field examinations, still had an accuracy rate of approximately 82%. Id. Even the government's expert testified that the accuracy of polygraph was vastly better than chance. Id. at 687 n.7.

<sup>72</sup>350 F.Supp. at 690. The appellate court's reversal in Zeiger cannot be considered a statement that polygraph evidence is inadmissible, given the factual setting of the appeal. After the district court issued its opinion, a procedure allowing expedited appeals in "emergency cases" was invoked (D.C. CODE ANN. tit. 23, § 104 (d) (1970)), resulting in relatively incomplete and hurried appellate briefs. Apparently feeling that such a significant issue should not be decided in the small amount of time (48 hours) afforded by the expedited procedure, the circuit court reversed without comment or opinion, believing it would have a more full and complete record after the case proceeded to trial. However, the defendant was acquitted of all charges, and the case never returned to the court of appeals. Personal communications with Frederick Barnett, attorney in Zeiger, in November, 1972. Mr. Barnett is a partner with F. Lee Bailey, in the Boston firm of Bailey, Alch & Gillis.

<sup>73</sup>350 F. Supp. 90 (E.D. Mich. 1972). <sup>74</sup>Id. at 93.

<sup>75</sup>Id. at 94. For a thorough discussion of applicable case law and scientific information which lead to the conclusion that the polygraph is highly accurate, see Note, The Emergence of the Polygraph at Trial, 73 COLUM. L. REV. 1120 (1973).

<sup>76</sup>Barland & Raskin, An Evaluation of Field Techniques in Detection of Deception, in PSYCHOPHYSIOLOGY (1975).

<sup>77</sup>This figure, known as the correlation coefficient, is a mathematical derivation used to ascertain the relationship between any two variables. (Plus or minus 1.00 meaning perfect correlation and 0.00 meaning no relationship at all).

<sup>78</sup>Kubis, Experimental and Statistical Factors in the Diagnosis of Consciously Suppressed Affective Experience, 6 J. CLINICAL PSYCH. 12, 14 (1950); Mac Nitt, In Defense of the Electrodermal Response and Cardiac Amplitude as Measures of Deception, 33 J. CRIM. L.C. & P.S. 266, 271 (1942); Summers,



Science Can Get the Confession, 8 FORDHAM L. REV. 334, 340 (1939).

<sup>79</sup>Bersh, A Validation Study of Polygraph Examiner Judgments, 53 J. APPLIED PSYCH. 399 (1969).

<sup>80</sup>G. Barland, Detection of Deception in Criminal Suspects, 1975 (unpublished doctoral dissertation in University of Utah Library).

<sup>81</sup>Reid & Horvath, The Reliability of Polygraph Examiner Diagnosis of Truth and Deception, 62 J. CRIM. L.C. & P.S. 276 (1971).

<sup>82</sup>See also Blum & Osterloh, The Polygraph Examination as a Means for Detecting Truth and Falsehood in Stories Presented by Police Informants, 59 J. CRIM. L.C. & P.S. 133, 136-37 (1968), describing a study in which the examiner managed correctly to identify 102 of 106 critical statements as true or false from a group not renowned for veracity—underground informants.

<sup>83</sup>See also Lykken, The GSR in a Detection of Guilt, J. APPLIED PSYCH. 385-88 (1959), wherein a 93.9% correct classifications rate was recorded in an experiment involving mock crimes and a test based on galvanic skin response (GSR).

<sup>84</sup>See, e.g., Lykken, The Validity of the Guilty Knowledge Technique: The Effects of Faking, 44 J. APPLIED PSYCH. 258 (1960) (Twenty subjects, including psychologists, psychiatrists, and medical students were given training in the theory of the galvanic skin response (GSR) method, and were allowed to practice producing false responses. The subjects were then offered ten dollars if they could "beat" the test; correct classifications were achieved in 100% of these cases using objective scoring of the GSR results alone.); Davidson, Validity of the Guilty Knowledge Technique: The Effects of Motivation, 52 J. APPLIED PSYCH. 62 (1968) (using polygraph recording of GSR and the guilty knowledge technique in a simulated crime context, with motivation for deceiving the examiner (\$25-50) for half of the crimes and law (10¢-\$1) for the other half, correct classification was achieved in 92% of "guilty" subjects and 100% of "innocent" subjects.)

<sup>85</sup>See, e.g., Gustafson & Orne, The Effects of Verbal Responses on the Laboratory Detection of Deception, in 2:1 PSYCHOPHYSIOLOGY 10, 13 (1965), describing a study resulting in a determination that having the subject verbally "lie" by means of a "no" response produced the highest detection rate; this is currently the procedure used in most laboratory studies, and most field examinations utilize questions phrased so that the subject must say "no" to avoid incrimination. The Gustafson-Orne experiments demonstrated that "psychological variables are the basic determinant of the alterations in physiological response upon which the detection of deception is based." It is interesting to note that this confirmation of the underlying theory of polygraphy was produced by, inter alia, M. T. Orne, a government witness in United States v. Zeiger, 350 F.Supp. 685, 689 (D.D.C. 1972).

<sup>86</sup>See Thackray & Orne, Effects of the Type of Stimulus Employed and the Level of Subject Awareness on the Detection of Deception, 52 J. APPLIED PSYCH. 234 (1968). This study also attempted to provide exploratory data concerning the physiological responsivity of lie detection stimuli when the subjects were unaware that their responses were being monitored. While there was no evidence that detection was inferior under the "not-aware" condition, difficulties in achieving a completely convincing situation of unawareness suggest caution in generalizing from these findings.

<sup>87</sup>See Gustafson & Orne, Effects of Heightened Motivation on the Detection of Deception, 47 J. APPLIED PSYCH. 408 (1963). GSR responses were recorded for two groups, one "motivated to deceive the operator and withhold responses," and the other given no special instructions. Subjects who were motivated to deceive were more readily detected, as they more frequently produced "disproportionately large skin responses to critical as opposed to non-critical items . . ."

<sup>88</sup>See also Barland & Raskin, supra note 34. <sup>89</sup>See note 29 supra.

<sup>90</sup>United States v. Ridling, 350 F.Supp. 90, 93 (E.D. Mich. 1972). The ambit of allowable opinion was sketched by the Iowa Supreme Court: "The polygraph examiner properly qualified as an expert should be permitted to explain the nature of the tests given, state the questions asked and answers given, the reactions thereto as indicated by the equipment and his opinion as to defendant's telling the truth when answering the specific questions. The witness should not be asked nor permitted to answer directly that defendant was involved in the [crime]. If defendant was involved in the [crime] in this case he was . . . guilty. An expert, testifying to a hypothetical question or as to tests made may not go that far." State v. Galloway, 167 N.W. 2d 89, 94 (Iowa 1969).

<sup>91</sup>3 L. Orfield, CRIMINAL PROCEDURE UNDER THE FEDERAL RULES 518 (1966). See also Lyons v. United States, 325 F.2d 370, 377 (9th Cir. 1963), cert. denied, 377, U.S. 969 (1964).

As of July 1, 1975, Article VII, Rules 701-05 of the new Rules of Evidence for United States Courts and Magistrates (reproduced in 43 U.S.L.W. 137, 140-41 (Jan. 14, 1975)) will govern evidentiary matters relating to opinion and expert testimony in federal courts. However, these new rules will not in any manner affect nor alter the analysis in the text.

<sup>92</sup>Holm v. United States, 325 F.2d 44, 46 (9th Cir. 1963) (opinion based upon handwriting analysis). See also, e.g., Ignacio v. Guam, F. 2d 513, 520 (9th Cir. 1969), cert. denied, 397 U.S. 943 (1970) (ballistics expert's opinion that a bullet came from a particular firearm); United States v. Sollberger, 411 F.2d 1019 (9th Cir. 1969) (chemist competent to testify to her conclusions); United States v. Bourassa, 411 F.2d 69, 74 (10th Cir.), cert. denied, 396 U.S. 915 (1969) (secret service agent's testimony that coins were counterfeit); State v. Spencer, 216 N.W.2d 131 (Minn. 1974) (expert opinion based on neutron activation analysis that firing a weapon is indicated).

<sup>93</sup>Ignacio v. Guam, 413 F.2d 513, 520 (9th Cir. 1969), cert. denied, 397 U.S. 943 (1970).

<sup>94</sup>237 F.2d 893 (9th Cir. 1956). <sup>95</sup>Id. at 897 (citations omitted).

<sup>96</sup>398 F.2d 91, 106 (8th Cir. 1968), cert. denied, 393 U.S. 1119 (1969).

<sup>97</sup>The expert was asked whether there was a reliable way to determine when the defendant was telling the truth, and he responded that "there exists no 'black and white test' and that it 'is strictly a matter of judgment and experience of the examiner who questions the person.'" 398 F.2d at 106. The court further explained that such testimony did not usurp the function of the jury: "In this case, Dr. Alderete expressed his opinion as to whether Riley believed the statement given him when Riley made it. This is far short of

Dr. Alderete expressing his expert opinion that he believed Riley's statement, or that Dr. Alderete believed the defendants guilty in accordance with Riley's statement." Id. Another court explained that the trial judge's discretion to admit opinion evidence as to credibility "must rest for the most part on the court's judgment as to whether an emotional or mental condition is involved which a body of laymen either would be unable to detect or would be unable to relate in terms of effect to the matter of credibility." People v. Russel, 69 Cal. 2d 187, 195, 443 P.2d 794, 900, 70 Cal. Rptr. 210, 216, cert. denied, 393 U.S. 864 (1968). This is the precise analysis for admission of expert opinion based upon polygraph evidence. See, e.g., Strong, Questions Affecting the Admissibility of Scientific Evidence, 1970 U. ILL. L.F. 1, 11 [hereinafter cited as Strong].

<sup>98</sup>350 F.Supp. at 93.

<sup>99</sup>Strong, supra note 97, at 5. The demarcation line is said to be artificial, convenient and sometimes violated in the interests of perspective on the process of admitting scientific evidence. Id. at 5-6.

<sup>100</sup>McCormick, supra note 29, at 504-07. But see United States v. Ridling, 350 F.Supp. 90, 93 (E.D. Mich. 1972) ("[T]he evidence in reality is opinion evidence.").

<sup>101</sup>Strong, supra note 97, at 1-4.

<sup>102</sup>Id. at 4, 14. See note 106 infra. If, e.g., it is not always true that no two bullets are identical, the court should properly balance probative value against prejudice.

<sup>103</sup>Id. at 14.

<sup>104</sup>"[The officer] even stated positively that he knew that the bullet came out of the barrel of that revolver, because the rifling marks on the bullet fitted into the rifling of the revolver in question, and that the markings on that particular bullet were peculiar, because they came clear up on the steel of the bullet . . . The evidence of this officer is clearly absurd, besides not being based on any known rule that would make it admissible. If the real facts were brought out, it [sic] would undoubtedly show that all Colt revolvers of the same model and the same caliber are rifled in precisely the same manner, and the statement that one can know that a certain bullet was fired out of a 32-caliber revolver, where there are hundreds and perhaps thousands of others rifled in precisely the same manner and of precisely the same character, is preposterous." People v. Berkman, 307 Ill. 492, 501-02, 139 N.E. 91, 94 (1923) (emphasis added).

<sup>105</sup>293 F. 1013 (D.C. Cir. 1923).

<sup>106</sup>Strong, supra note 97, at 11-13. Professor Strong suggests that the few areas of scientific evidence held to the more rigorous Frye standard have one or more of these characteristics in common: (1) they are not readily assignable to any branch of science when first offered; (2) they rely on a mechanical device or chemical process; (3) they deal with "ultimate issues" in some sense; and (4) the proposition is articulated as "probably such and such" as opposed, e.g., to "bullet markings are always different."

<sup>107</sup>The apparent judicial hostility toward the polygraph, evidenced by the determination of admissibility by more stringent standards than other scientific evidence, was recognized in Note, The Polygraphic Technique: A Selective

Analysis, 20 DRAKE L. REV. 330, 336-37 (1971), and in C. McCormick, HANDBOOK OF THE LAW OF EVIDENCE § 170, at 363 (1954) [hereinafter cited as McCormick Handbook]:

"We face at the outset the question, to what extent must the device, technique or theory be shown to have won scientific acceptance before the results or conclusions based thereon can be used in evidence? The court which first faced the question of the admissibility of the results of a 'lie-detector' examination announced as the test whether the supporting theory had gained general acceptance among 'psychological and physiological authorities.' The court held that this test was not met and rejected the evidence, and this particular kind of evidence has been rejected with like reasoning by other courts ever since. By contrast, another court quite recently, considering the admissibility of the results of the use of the Harger breath test for measuring intoxication seemingly rejected this criterion of general scientific acceptance, and said: 'Dr. Beerstecher [a biochemist] testified that the instrument in question is accurate and he gave his reasons for it. He admitted that there are others who disagree with its accuracy. The objection to his testimony, therefore, goes to its weight and not to its admissibility.'

"It seems that the practice approved in the second case is the one followed in respect to expert testimony and scientific evidence generally. 'General scientific acceptance' is a proper condition upon the court's taking judicial notice of scientific facts, but not a criterion for the admissibility of scientific evidence." The differential treatment of the admissibility of polygraph test results supports the conclusion that the Frye standard is really a device by which many jurists conceal their subjective beliefs that the polygraph will replace the jury system. See, e.g., United States v. Stromberg, 179 F.Supp. 278, 280 (S.D.N.Y. 1959); People v. Davis, 343 Mich. 348, 372, N.W.2d 269, 282 (1955). It may be explained by their reluctance to admit any scientific device which is not primarily an aid to the prosecution. Cf., e.g., Worley v. State, 263 So. 2d 613, 616 (Fla. 1972) (Mager, J., concurring specially); People v. Bobczyk, 343 Ill. App. 504, 509, 99 N.E.2d 567, 570 (1951) (court emphasized need for test in law enforcement, admitting drunkometer results).

Some of the recent voiceprint cases are illustrative of judicial readiness to admit a notoriously unreliable form of evidence because it is helpful to the prosecution. Some courts, however, have refused to admit voiceprint evidence. See, e.g., United States v. Addison, 498 F.2d 741 (D.C.Cir. 1974) (overruling admission of voiceprint evidence in United States v. Raymond, 337 F.Supp. 641 (D.D.C. 1972); People v. Law, 40 Cal. App. 3d 69 (1974); People v. Chapter, 13 Crim. L. Rptr. 2479 (Super. Ct. Marin County, Cal. 1973). See also, Jones, Danger—Voiceprints Ahead, 11 AM. CRIM. L. REV. 549 (1973). In Hodo v. Superior Court, 30 Cal. App. 3d 778, 106 Cal. Rptr. 547 (1973), the court alluded to the Frye "general acceptance" standard, but admitted the voiceprint evidence by holding that, although the technique was not generally accepted, the term "experts" was to apply only to those in the field who could be "expected to be familiar with its use." Id. at 778, 106 Cal. Rptr. at 553. In the case of voiceprints, this amounted to less than a half-dozen persons out of thousands of acoustics experts. Based on a single set of experiments performed by the key prosecution witness, Dr. Tosi, who claimed that they established that the technique has less than 6% error, the court determined that the process was reliable enough to have probative value and admitted the evidence. The three other major voiceprint decisions do not even mention the Frye standard. United States v. Wright, 17 U.S.C.M.A. 183, 37 C.M.R. 447

(1967) (reliability and accuracy of results based on testimony of Dr. Kersta, developer of test, whose testimony was rejected in *People v. King*, 266 Cal. App. 2d 437, 72 Cal. Rptr. 478 (1968); *Worley v. State*, 263 So. 2d 613 (Fla. 1972) (accuracy based on Dr. Tosi's experiments); *State ex rel. Trimble v. Hedman*, 291 Minn. 442, 457-58, 192 N.W.2d 432, 441 (1971) (reliability based on Dr. Tosi's experiments; any disagreement with Dr. Tosi's results should go to weight, not admissibility). See also *Coppolino v. State*, 223 So. 2d 68, 70 (Fla. 1968), cert. denied, 399 U.S. 927 (1970) (test developed by witness for determining amount of poison in victim's body admitted despite witness's admission that not sufficiently reliable for publication in a medical journal, and other experts' testimony that they believed such a test was not possible; court, without mentioning *Frye* criteria, noted broad discretion in trial court as to reliability and admissibility of scientific evidence, and stated proper standard for review was whether scientific test was "so unreliable and scientifically unacceptable that [its] admission into evidence was error"); *Henson v. State*, 159 Tex. Crim. 647, 655-56, 266 S.W.2d 864, 869 (1953) (admission of "paraffin" test for gun shot residue on hands upheld because test not so "inherently unreliable"); *People v. Bobczyk*, 343 Ill. App. 504, 511, 99 N.E.2d 567, 570 (1951) (chemical tests for intoxication admitted; lack of uniformity of scientific opinion goes to weight, not admissibility); *United States v. Stifel*, 433 F.2d 431, 435-41 (6th Cir. 1970), cert. denied, 401 U.S. 994 (1971) (wide discretion in trial court in determining whether state of technology warrants admission of expert testimony; despite newness of technique of neutron activation analysis and lack of unanimity among experts as to conclusiveness of results; general acceptance "in the particular field in which it belongs" satisfied essentially by existence of four scientists who devoted the bulk of their time to development of the process).

<sup>108</sup>The underlying principle that measurable physiological changes accompanying deception can be recorded by polygraph and interpreted by a competent examiner to a greater than 90% accuracy has been established. See notes 58-82 & accompanying text *supra*. Some courts are at last conceding, moreover, that polygraph evidence should be held to the same standard of "probative value" as other types of scientific evidence. See, e.g., *United States v. DeBetham*, 348 F.Supp. 1377 (S.D.Cal.), aff'd. 470 F.2d 1367 (9th Cir. 1972), cert. denied, 412 U.S. 907 (1973); *People v. Adams*, No. M69424 (Alhambra Mun. Ct. Los Angeles County, Cal. May 14, 1974).

<sup>109</sup>*Strong*, *supra* note 97, at 14-15.

<sup>110</sup>"Probableness" can, of course, properly be weighed against "the familiar dangers of misleading the jury, unfair surprise and undue consumption of time." McCormick Handbook, *supra* note 107, at 363-64.

<sup>111</sup>*Frye v. United States*, 293 F. 1013 (D.C.Cir. 1923). See notes 37-38 *supra*.

<sup>112</sup>293 F. at 1014 (emphasis added). <sup>113</sup>348 F.Supp. 1377 (S.D.Cal. 1972).

<sup>114</sup>*Id.* at 1379. <sup>115</sup>*Id.* at 1382-84. <sup>116</sup>See notes 30-35 & accompanying text *supra*.

<sup>117</sup>LAW-MEDICINE RESEARCH INSTITUTE, SCIENTIFIC INVESTIGATION IN CRIMINAL JUSTICE 14-15 (1969).

<sup>118</sup>293 F. at 1014 (emphasis added). But see *United States v. DeBetham*, 348 F.Supp. 1377, 1383 n.15 (S.D.Cal. 1972) ("It seems then that it is only subsequent opinions that have read into *Frye* a more special purpose.").

As part of its holding, the district court in DeBetham found that polygraphy did not meet the Frye "general acceptability" test. Id. at 1381-82. However, the DeBetham court appears to have read the Frye "general acceptance" requirement far too literally, by demanding not only widespread acceptance of the technique and its use throughout the various scientific communities involved, but also "general acceptance" of the underlying scientific theory. Thus, DeBetham requires not only that all knowledgeable parties agree that the system works and actually employ it in fact, but further that they agree as to why the technique works. It is submitted that validity of a process is demonstrated not by the reasons why it works, but rather by the correlation between a particular event and certain desired effects. See notes 34-35 & accompanying text supra.

<sup>119</sup>The Frye opinion has not enjoyed much repute among legal analysts who cannot find an acceptable rationale for its departure from normal evidentiary standards for the admission of scientific evidence. See notes 104-10 & accompanying text supra. See Strong, supra note 97, at 13. See also United States v. Wilson, 361 F. Supp. 510, 511 (D.Md. 1973) ("Thus rather than putting the issue in terms of 'general acceptance within a particular field' and engaging in an academic dispute as to the particular field in which polygraphy fits, the Court chooses to assess the progress of polygraphy by drawing on contributions from those engaged both in theory and practice.").

<sup>120</sup>See notes 101-03 & accompanying text supra.

<sup>121</sup>McCormick Handbook, supra note 107, at 363.

<sup>122</sup>Strong, supra note 97, at 9 ("even if judicial notice is not taken of the validity of a general proposition of science, that validity may still be established by an appropriate evidentiary showing by expert testimony.") See also Kaplan, The Lie Detector: An Analysis of its Place in the Law of Evidence, 10 WAYEN L. REV. 381, 386 (1964).

<sup>123</sup>It is arguable that after the opinion of the appellate court in United States v. DeBetham, 470 F.2d 1367 (9th Cir. 1972), which recognized the reliability of polygraphs while upholding the discretion to exclude it, courts in the Ninth Circuit should take judicial notice of the validity of the polygraph technique. This interpretation is supported by the recent opinion in United States v. Alvarez, 472 F.2d 111 (9th Cir. 1973), which indicated that the trial court, which seems to have been presented with no evidentiary foundation, nonetheless had full discretion to admit or reject the polygraph evidence; such discretion would only seem possible under the circumstances in Alvarez if the validity of the technique were judicially noticed. See also Ridling v. United States, 350 F.Supp. 90, 94 (E.D. Mich. 1972).

<sup>124</sup>237 F.2d 893, 896-97 (9th Cir. 1956).

<sup>125</sup>64 Cal. 2d 647, 656, 414 P.2d 382, 390, 51 Cal. Rptr. 254, 262 (1966).

<sup>126</sup>Compare People v. Williams, 164 Cal. App. 2d 858, 331 P.2d. 251 (1958), where the issue was admissibility of Nalline test results, and the particular field was similarly limited: "It has been generally accepted by those who would be expected to be familiar with its use. In this age of specialization more should not be required." Id. at 862, 331 P.2d at 254.

<sup>127</sup>64 Cal. 2d 647, 656, 313 P.2d 382, 390, 51 Cal. Rptr. 254, 262 (1966); cf. United States v. Stifel, 433 F.2d 431, 438 (6th Cir. 1970), cert. denied, 401 U.S. 994 (1971) (general acceptance in field of neutron activation analysis

shown essentially by four scientists who devoted substantial amount of their time to the field); *Hodo v. Superior Court*, 30 Cal. App. 3d 770, 106 Cal. Rptr. 547 (1973) (experts in voiceprint field limited to those "who could be expected to be familiar with the technique," totaling less than a half-dozen); *Coppolino v. State*, 223 So. 2d 68, 70 (Fla. 1968), cert. denied, 399 U.S. 927 (1970) (field consisted of one toxicologist).

<sup>128</sup>64 Cal. 2d 647, 414 P.2d 382, 390, 51 Cal. Rptr. 254, 262 (1966); *Hodo v. Superior Court*, 30 Cal. App. 3d 778, 784-85, 106 Cal. Rptr. 547, 550 (1973); *People v. King*, 266 Cal. App. 2d 437, 443, 72 Cal. Rptr. 478, 482 (1968).

<sup>129</sup>The court in *People v. Adams*, No. M69424 (Alhambra Mun. Ct. Los Angeles County, Cal. May 14, 1974), asserted that even this stricter standard has been achieved, with "in excess of 70% of physiologists and psychologists generally accept[ing] the proposition that [polygraph] recordings can be accurately interpreted."

<sup>130</sup>See note 127 *supra*. <sup>131</sup>155 F.2d 857 (D.C.Cir.), cert. denied, 328 U.S. 873 (1946).

<sup>132</sup>*Id.* at 860. <sup>133</sup>*Id.* (emphasis added).

<sup>134</sup>See, e.g., POLYGRAPH IN COURT, *supra* note 35, at 61 (testimony of Clayborne A. Lowry, criminal investigator, U.S. Army 1951-1968 & instructor, Fort Gordon School of Polygraph, that he could not recall a single case in the military in which a man was formally prosecuted after having been judged by a polygraph examiner to be telling the truth); *id.* at 77-78 (testimony of Robert Brisentine, chief polygraph advisor to the commanding officer, U.S. Army CID Agencies, to the same effect).

<sup>135</sup>*Frye v. United States*, 293 F. 1013, 1014 (D.C.Cir. 1923) (emphasis added).

<sup>136</sup>To support its finding of "general use," the court merely cited the 1936 publication of a work entitled Spectroscopy in Science and Industry and the 1938 records of Proceedings of the Fifth Summer Conference on Spectroscopy and its Applications. *Medley v. United States*, 155 F.2d 857, 860 n.4 (D.C.Cir.), cert. denied, 328 U.S. 873 (1946).

<sup>137</sup>*United States v. DeBetham*, 348 F.Supp. 1377, 1389 (S.D.Cal. 1972).

<sup>138</sup>*United States v. Zeiger*, 350 F.Supp. 685, 688 (D.D.C. 1972).

It is interesting to note the reliance of public officials on polygraphs when accused of impropriety. When Frank Rizzo, mayor of Philadelphia, was accused by a Democratic Party leader of offering to let him choose architectural firms for lucrative city projects in exchange for letting Rizzo pick the party's district attorney candidate, and the mayor flatly denied the allegation, a local newspaper proposed that both men take lie detector tests. Rizzo not only agreed, he proclaimed, "'I have great confidence in the polygraph. If it says a man lied, he lied.' That was indeed what the polygraph said: Rizzo flunked six key questions." *NEWSWEEK*, Sept. 3, 1973, at 91 (emphasis added).

Similarly, former Lt. Governor Reinecke of California submitted to two days of polygraph testing in conjunction with charges of perjury stemming from the ITT affair. Though initially expressing his confidence that the tests would "clear me of any wrongdoing" (*Los Angeles Times*, Mar. 15, 1974, at 1), his confidence waned after he claimed the tests proved "inconclusive," and stated that, "I don't think there is a question of passing or flunking . . .

You are either reactive or not reactive." Id., Apr. 6, 1974, at 1. The absurdity of Reinecke's assertion that he was just "a very reactive person" to the polygraph technique is apparent. See note 35 supra.

Even Los Angeles District Attorney Joe Busch, who has analogized the polygraph to "twentieth century witchcraft" when admissibility in court was suggested (Los Angeles Daily Journal, Jan. 2, 1974 at 1), immediately offered to take a polygraph when accused of election improprieties.

<sup>139</sup>No. M69424 (Alhambra Mun. Ct. Los Angeles County, Ca. May 14, 1974).

<sup>140</sup>See 1 J. Wigmore, A TREATISE ON THE ANGLO-AMERICAN SYSTEM OF EVIDENCE IN TRIALS AT COMMON LAW § 10 (3d ed. 1940). See notes 101-03 & accompanying text supra.

<sup>141</sup>McCormick, supra note 29, at 433. Being "logically probative" would seem the equivalent of "possessing efficacy." People v. Leone, 25 N.Y.2d 511, 517, 255 N.E.2d 696, 699-700 (1969).

<sup>142</sup>350 F.Supp. 685, 687-88 (D.D.C. 1972) (footnotes are author's; court's footnotes omitted).

<sup>143</sup>See notes 107-08 & accompanying text supra.

<sup>144</sup>See notes 58-60, 76-82 & accompanying text supra, and notes 214-23 & accompanying text infra.

<sup>145</sup>McCormick, supra note 29, at 437.

<sup>146</sup>People v. Forte, 279 N.Y. 204, 206, 18 N.E.2d 31, 32 (1938).

<sup>147</sup>People v. Davis, 343 Mich. 348, 72 N.W.2d 269 (1955); People v. Leone, 25 N.Y.2d 511, 255 N.E.2d 696, 307 N.Y.S.2d 430 (1969); People v. Kenny, 167 Misc. 51, 3 N.Y.S.2d 348 (Sup. Ct. Queens County 1938).

<sup>148</sup>This was recognized as to federal cases by the district courts in United States v. Zeiger, 350 F.Supp. 685, 687 nn.4-5 (D.D.C. 1972), and United States v. DeBetham, 348 F.Supp. 1377, 1379 nn.1,3 (S.D.Cal. 1972).

As to the state cases, see, e.g., People v. Jones, 52 Cal. 2d 636, 343 P.2d 577 (1959); People v. York, 174 Cal. App. 2d 305, 344 P.2d 811 (1959); People v. Wochnick, 98 Cal. App. 2d 124, 219 P.2d 70 (1950); People v. Boney, 28 Ill. 2d 505, 192 N.E.2d 920 (1963); Zupp v. State, 258 Ind. 625, 283 N.E. 2d 540 (1972); State v. Lowry, 163 Kan. 622, 185 P.2d 147 (1947); People v. Becker, 300 Mich. 562, 2 N.W.2d 503 (1942); State v. Kolander, 236 Minn. 209, 52 N.W.2d 458 (1952); Hawkins v. State, 224 Miss. 309, 77 So. 2d 263 (1955); State v. Cole, 354 Mo. 181, 188 S.W.2d 43 (1945); State v. Hollywood, 138 Mont. 561, 358 P.2d 437 (1960); Parker v. State, 164 Neb. 614, 83 N.W.2d 347 (1957); Boeche v. State, 151 Neb. 368, 37 N.W.2d 593 (1949); State v. Emery, 27 NJ348, 142 A.2d 874 (1958); People v. Forte, 279 N.Y. 204, 18 N.E.2d 31 (1938); State v. Foye, 254 N.C. 704, 120 S.E.2d 169 (1961); Looper v. State, 381 P.2d 1018 (Okla. Crim. 1963); Henderson v. State, 94 Okla. Crim. 45, 230 P.2d 495 (1951); Commonwealth ex rel. Hunter v. Banmiller, 194 Pa. Super. 448, 169 A.2d 347 (1961); Grant v. State, 213 Tenn. 440, 374 S.W.2d 391 (1964); Placker v. State, 171 Tex. Crim. 406, 350 S.W.2d 546 (1961); Davis v. State, 165 Texas Crim. 456, 308 S.W.2d 880 (1958); State v. Bohner, 210 Wis. 651, 246 N.W. 314 (1933).

<sup>149</sup>"Many courts can easily recede from this position [excluding polygraphs] in a case where the foregoing facts as to acceptance and reliability are adequately proven by the expert himself as a foundation for his testimony giving



the test-results." McCormick Handbook, supra note 107, § 174, at 372.

<sup>150</sup>In People v. Kenny, 167 Misc. 51, 3 N.Y.S.2d 348 (Sup. Ct. Queens County 1938), results of a form of polygraph known as a "pathometer" were admitted based upon a foundation established by Father Summers. See note 39 supra. When no foundation was proffered, the court in People v. Forte, 279 N.Y. 204, 206, 18 N.E.2d 31, 32 (1938), upheld the rejection of defendant's offer to take a pathometer test after conclusion of the evidence, stating "we cannot take judicial notice that the instrument is or is not effective for the purpose of determining the truth."

In People v. Leone, the court recognized that polygraph evidence could be admitted upon presentation of proper foundation, but found that the showing in the instant case was inadequate as it did not indicate "a general scientific recognition that the polygraph possesses efficacy." 25 N.Y.2d 511, 517, 255 N.E.2d 696, 307 N.Y.S.2d 430, 434 (1969). The court emphasized that the polygrapher involved had been unable to reach any legally meaningful conclusions. Id. at 517, 255 N.E.2d at 699-700, 307 N.Y.S.2d at 434. The decision in Leone has, however, been limited to its facts and time period. People v. McCains, 42 App. Div. 2d 866, 867, 347 N.Y.S.2d 72, 74 (1973) (court implicitly recognized increased acceptance of polygraphy since Leone); Walther v. O'Connell, 72 Misc. 2d 316, 317-19, 339 N.Y.S.2d 386, 387-89 (Civ. Ct. Queens City 1972) (court admitted polygraph results as it would expert testimony in civil case, distinguishing Leone on the ground that the court in that case had dealt with an inexperienced polygraph examiner; apparently without foundational showing, court in effect took judicial notice of reliability of polygraph, and stated that in light of this reliability, previous legal precedents based on unreliability were not binding.)

Finally, in People v. Davis, 343 Mich. 348, 372, 72 N.W.2d 269, 282 (1955), the court found that, although the foundational testimony was "noteworthy and valuable," it was insufficient in view of the "tremendous weight" such evidence would carry. However, the court's distrust of polygraphy was substantially based on the opinion of Professor Inbau. Id. at 370, 72 N.W.2d at 281. Inbau has since changed this opinion to favor admissibility of polygraph evidence. See note 58 & accompanying text supra.

<sup>151</sup>There is some uncertainty as to whether this foundation must demonstrate probative value or general acceptance. Compare notes 107-08 & accompanying text supra, with notes 106, 111-12 & accompanying text supra.

<sup>152</sup>413 F.2d 796, 803 (10th Cir. 1969) (emphasis added), quoting 3 J. Wigmore, EVIDENCE § 990 (3d ed. 1940).

<sup>153</sup>See, e.g., United States v. Penick, 496 F.2d 1105 (7th Cir. 1974) (sustaining trial court's discretion in admitting polygraph results as to one count and not as to other counts, and stating that under 18 U.S.C. § 3006 (a) (1970) the trial court can appropriate funds for polygraph testing where defendant is indigent); United States v. Grasso, CR-72-179-LC (D.Mass. June, 1973); United States v. Ridling, 350 F.Supp. 90 (E.D.Mich. 1972); United States v. Zeiger, 350 F.Supp. 685 (D.D.C.), rev'd per curiam, 475 F.2d 1280 (D.C. Cir. 1972); United States v. Dioguardi, Crim. No. 72-1102 (E.D.N.Y. 1972); People v. Richardson, No. A014598 (Super. Ct. Los Angeles County, Cal. Sept. 21, 1974) (after evidentiary hearing, court admitted polygraph test results and dismissed prosecution); People v. Marshall, No. A128583 (Mun. Ct. Los Angeles County, Cal. June 6, 1974) (preliminary hearing); People v. Harris, No. A294977 (Super. Ct. Los Angeles County, Cal. June 26, 1973) (robbery conviction based

on uncorroborated identification; new trial granted when defendant passed polygraph test); Stenzel v. B., 71 Misc. 2d 719, 336 N.Y.S.2d 839 (Family Ct. Niagara City 1972) (results admissible in paternity case); Walther v. O'Connell, 72 Misc. 2d 316, 339 N.Y.S.2d 386 (Civ. Ct. Queens City 1972) (polygraph test results admissible in suit involving question of repayment of loan).

Polygraph evidence has also been admitted at sentencing hearings. State v. Jones, 110 Ariz. 546, 521 P.2d 978 (1974); State v. Watson, 115 N.J. Super. 213, 278 A.2d 543 (1971) (admitted because of desire to have available all material that might be useful at sentencing). Polygraph test results have been admitted at a hearing on a motion to suppress evidence. United States v. Lucken, CR 74-958 (S.D. Cal. Nov. 11, 1974) (Thompson, J.) (the judge, who had presided over the trial in DeBetham, admitted the polygraph results on the question of consent and proceeded to rule that the federal officers had testified falsely and the search was unlawful); People v. Cutler, No. A176965 (Super. Ct. Los Angeles County, Cal. Nov. 6, 1972), 12 CRIM. L. RPTR. 2133 (1972).

<sup>154</sup>United States v. Francis, 487 F.2d 968, 972 (5th Cir. 1973), cert. denied, 94 S. Ct. 1615 (1974); United States v. DeBetham, 348 F.Supp. 1377 (S.D. Cal.), aff'd, 470 F.2d 1367, 1368 (9th Cir. 1972), cert. denied, 412 U.S. 907 (1973); United States v. Lanza, 356 F.Supp. 27, 30 (M.D. Fla. 1973); Commonwealth v. A. Juvenile, 313 N.E.2d 120 (Mass. 1974).

Not surprisingly, in post-1972 cases where polygraph evidence was offered without foundation, the court rejected the evidence. United States v. Francis, 487 F.2d 968 (5th Cir. 1973) (sentence hearing); United States v. Sockel, 478 F.2d 1134 (8th Cir. 1973); United States v. Jenkins, 470 F.2d 1061 (9th Cir. 1972), cert. denied, 411 U.S. 920 (1973); People v. Thornton, 11 Cal. 3d 738, 523 P.2d 267, 114 Cal. Rptr. 467 (1974); State v. Jones, 281 So. 2d 220 (Fla. Ct. App. 1973); Cagle v. State, 132 Ga. App. 227, 207 S.E.2d 703 (1974); People v. Sanders, 56 Ill. 2d 241, 306 N.E.2d 865, cert. denied, 94 S. Ct. 3178 (1974); State v. Corbin, 285 So. 2d 234 (La. 1973); State v. Mower, 314 A.2d 840 (Me. 1974); People v. Bush, 54 Mich. App. 77, 220 N.W.2d 333 (1974); State v. Turley, 521 P.2d 690 (Mont. 1974); State v. Atkinson, 191 Neb. 9, 213 N.W.2d 351 (1973); State v. Clark, 128 N.J. Super. 120, 319 A.2d 247 (App. Div. 1974); Anonymous v. Anonymous, 75 Misc. 2d 823, 348 N.Y.S.2d 938 (Family Ct. Rockland County 1973); Castleberry v. State, 522 P.2d 257 (Okla. Crim. App. 1974); State v. Woo, 527 P.2d 271, 273 (Wash. 1974) ("If we are to consider a departure from a virtually unanimous rule against the admissibility of polygraph examinations, absent stipulation, we must be furnished with a record sufficiently adequate to permit review of the subject.") State v. Nemoir, 62 Wis. 2d 206, 214 N.W.2d 297 (1974).

In addition, in several post-1972 cases appellate courts rejected polygraph evidence without any discussion of foundation evidence or any indication that foundation testimony had been presented below. United States v. Gloria, 494 F.2d 477 (5th Cir. 1974); United States v. Pacheco, 489 F.2d 554 (5th Cir. 1974), petition for cert. filed, 43 U.S.L.W. 3039 (U.S. Aug. 13, 1974) (No. 73-1510); United States v. Frogge, 476 F.2d 969 (5th Cir.), cert. denied, 414 U.S. 849 (1973); Flurry v. State, 289 So. 2d 632 (Ala. Crim. App. 1973), cert. denied, 289 So. 2d 644 (Ala. 1974); People v. McVet, 287 N.E.2d 479 (Ill. 1972) (sentencing hearing); Robinson v. State, 309 N.E.2d 833 (Ind. Ct. App. 1974); People v. Allen, 49 Mich. App. 148, 211 N.W.2d 533 (1973) (sentencing hearing); Commonwealth v. Brooks, 309 A.2d 732 (Pa. 1973). But see

State v. Lucero, 86 N.M. 686, 526 P.2d 1091 (1974), overruling State v. Alderete, 86 N.M. 176, 521 P.2d 138 (Ct. App. 1974).

<sup>155</sup>348 F.Supp. 1377 (S.D.Cal. 1972).

<sup>156</sup>Frye v. United States, 293 F. 1013 (D.C.Cir. 1923). See notes 105-06, 111-46 & accompanying text supra.

<sup>157</sup>Cf. United States v. Salazar-Gaeta, 447 F.2d 468 (9th Cir. 1971); United States v. Sadrzadeh, 440 F.2d 389 (9th Cir. 1971). It is hard to imagine why the district court felt constrained by either case, since they were easily distinguishable because no foundational showing of the accuracy of the technique had been presented; in fact, the DeBetham trial court noted this by including Salazar-Gaeta and Sadrzadeh in a citation to all of the federal cases rejecting polygraph which had been decided without an evidentiary hearing. 348 F.Supp. at 1379.

<sup>158</sup>348 F.Supp. at 1380, 1384. See note 118 supra. <sup>159</sup>348 F.Supp. at 1391.

<sup>160</sup>470 F.2d 1367, 1368 (9th Cir. 1972).

<sup>161</sup>Id. (emphasis added); accord, United States v. Alvarez, 472 F.2d 111, 113 (9th Cir. 1973) ("In line with our decision in DeBetham we hold that the trial judge did not abuse his discretion in rejecting the offer of the polygraph evidence.").

<sup>162</sup>470 F.2d at 1368; cf. United States v. Covarrubias, No. 73-3242 (9th Cir. Mar. 12, 1974) (during oral argument, Chief Judge Chambers, a member of the DeBetham court, stated, "We told the trial courts they have discretion to admit polygraph evidence."); United States v. Lucken, CR 74-958 (S.D.Cal. Nov. 11, 1974) (Judge Thompson, the trial judge in DeBetham admitted polygraph test results on question of consent at hearing on motion to suppress and held the search was unlawful); United States v. Gonzales, CR 13089 (S.D.Cal. 1973) (Enright, J.) (judgment of acquittal based on polygraph results after jury verdict of guilty); United States v. Walker, No. 5108 (S.D.Cal. 1969) (after foundational evidence presented, polygraph evidence admitted on the question of compliance with knock and announcement requirements of 18 U.S.C. § 3109 (1970)).

In a rather curious decision, polygraph evidence was admitted at the voluntariness hearing but Judge Hauk would not allow the evidence to go to the jury; the court of appeals avoided the merits of the issue and affirmed the judgment of conviction. United States v. Merrill, No. 74-2247 (9th Cir. Nov. 6, 1972).

<sup>163</sup>The author's apprehension is based on such cases as United States v. Watts, 502 F.2d 726 (9th Cir. 1974), United States v. Alvarez, 472 F.2d 111 (9th Cir. 1973), and extensive experience in other federal courts since DeBetham.

<sup>164</sup>See, e.g., Fineberg v. United States, 393 F.2d 417, 421 (9th Cir. 1968); People v. Russel, 69 Cal. 2d 187, 443 P.2d 794, 70 Cal. Rptr. 210 (1968). "The discretion intended, however, is not a capricious or arbitrary discretion, but an impartial discretion, guided and controlled in its exercise by fixed legal principles . . . in conformity with the spirit of the law, and in a manner to subserve and not to impede or defeat the ends of substantial justice." Id. at 194, 443 P.2d at 799, 70 Cal. Rptr. at 215, quoting Bailey v. Taaffe, 29 Cal. 422, 424 (1866).

<sup>165</sup>S.B. 119 (1973) specifically incorporates CAL. EVID. CODE § 352 (West 1966), which utilizes just such a balancing approach to govern the trial court's discretion to exclude evidence. For text of S.B. 119, see note 263 infra.

<sup>166</sup>The Seventh Circuit has at least articulated a justification for upholding the trial court's discretion in denying authorization of funds under 18 U.S.C. § 3006A (1970) for polygraph examinations as to several counts after authorizing such funds and admitting the resulting test evidence on one count, by noting that there was substantial evidence of defendant's guilt as to the counts on which the evidence was not admitted, and that no exceptional circumstances were presented as to these other counts. *United States v. Penick*, 496 F.2d 1105, 1109-10 (7th Cir. 1974). Although the appellate court failed to formulate any meaningful standards for the exercise of discretion, even this limited justification is a greater analysis than has yet been provided by the Ninth Circuit.

<sup>167</sup>313 N.E.2d 120 (Mass. 1974). <sup>168</sup>Id. at 128.

<sup>169</sup>Id. at 126. <sup>170</sup>Id. at 128. <sup>171</sup>Id. at 124.

<sup>172</sup>Id. at 125. This policy decision by the court—to leave the admissibility question within the discretion of the trial court, rather than to deem polygraph evidence generally admissible—is based on two premises, neither of which is convincing. First, the majority states that, "In sum, despite very significant progress in recent years, the field of polygraphy is still challenged forcefully on theoretical grounds..." Id. However, the authorities and articles cited in support of this contention date from 1950 to 1962, certainly prior to many of the recent and significant developments in the field. They are hardly persuasive as to the present state of the art. Secondly, the opinion asserts that "polygraphy...has yet to achieve a predictable level of consistency among examiners." Id. As extensively discussed elsewhere in this article, numerous scientific studies have shown polygraphy to be highly accurate, as has practical research. See notes 57-82 & accompanying text supra, & notes 214-23 & accompanying text infra. The dispute is not whether the technique is accurate but whether the precise degree of accuracy is 85 or 98%. "[C]onclusiveness is not the requirement for admissibility of scientific evidence." *United States v. Stifel*, 433 F.2d 431, 441 (6th Cir. 1970). While it is true that the field of polygraph, like other scientific fields, contains persons of differing competency and experience, so that accuracy may very depending on the ability of the examiner, the Massachusetts court itself stresses the importance of the trial judge's examination of the qualifications of the expert and strongly indicates its faith in the judge's ability to make such an evaluation as a basis for exercising his discretion. 313 N.E.2d at 126, 129.

<sup>173</sup>313 N.E.2d at 129.

<sup>174</sup>Similarly, situations in which the polygraph test results should properly be excluded might be indicated, as, for example, where two experts reach opposite conclusions, so that the probative value of the evidence is outweighed by undue consumption of time or potential confusion of the issues. See note 165 supra & note 274 & accompanying text infra. That this task is neither nor impossible is illustrated by *Gordon v. United States*, 383 F.2d 936, 939-40 (D.C.Cir. 1967), in which the court set out comprehensive guidelines as to what factors trial courts should consider in exercising their discretion to

exclude or admit prior felony convictions offered by the government for impeachment purposes; the practical utility of such standards is evidence in the numerous cases following Gordon that expressly relied on those guidelines.

<sup>175</sup>For example, in United States v. Urquidez, 356 F.Supp. 1363 (C.D. Cal. 1973), the court acknowledged that DeBetham permits the admission of polygraph evidence under proper circumstances. However, Urquidez rejected the test results after an evidentiary hearing, and held "that, as of now, the validity of a polygraphic test is dependent upon a large number of variable factors ... difficult, and perhaps impossible, to assess." Id. at 1367. This holding was relied upon in State v. Curtis, 281 So. 2d 514, 515 (Fla. Ct. App. 1973), to justify exclusion.

It is submitted that the following factual circumstances, not apparent in the opinion but based on the author's personal knowledge and an analysis of evidence at the hearing, explain the Urquidez decision, and emphasize the manner in which bad precedent is established: (1) The attorney presenting the case for admission of polygraph evidence attempted a 30-day "crash course" on the subject, and simply had an insufficient knowledge of polygraph evidence to present the motion properly or to make the correct strategic decisions. (2) For reasons still unclear, the Los Angeles federal public defender's office, which was in charge of the case, refused help volunteered by more experienced attorneys (specifically, counsel for DeBetham and Cutler). (3) The examiner who administered the test was not highly experienced; he would not have qualified under the proposed California Polygraph Bill. (4) The examiner's former employers testified at the hearing that he had been fired by them because of his lack of competence. (5) The test results themselves, when numerically evaluated, bordered on inconclusiveness, and a knowledgeable practitioner would have concluded that this was not an appropriate test case. (6) Because of his inexperience, the defense attorney consented to have his client examined by a second (allegedly incompetent) examiner, who used no generally recognized technique, who proceeded to testify for the government, contrary to the conclusions of the inexperienced defense examiner. Had the second examiner been appointed by the court or by stipulation of the parties from recognized, competent experts in the community, as suggested by the court in United States v. Ridling, 350 F.Supp. 90, 96-97 (E.D. Mich. 1972), and by the proposed California Polygraph Bill, this conflict might have been avoided. In short, the circumstances of the Urquidez hearing made it as poor a forum for presenting the case for polygraph as is imaginable.

<sup>176</sup>See, e.g., Herman v. Eagle Star Ins. Co., 283 F.Supp. 33 (C.D. Cal. 1966), aff'd., 396 F.2d 427 (9th Cir. 1968); State v. Bush, 109 Ariz. 487, 512 P.2d 1221 (1973); People v. Davis, 270 Cal. App. 2d 841, 76 Cal. Rptr. 242 (1969); People v. Houser, 85 Cal. App. 2d 686, 193 P.2d 937 (1948); State v. Brown, 177 So. 2d 532 (Fla. Ct. App. 1965); People v. Pairisie, 7 Ill. App. 3d 1009, 287 N.E.2d 310 (1972); State v. Galloway, 167 N.W.2d 89 (Iowa 1969); State v. Free-land, 255 Iowa 1334, 125 N.W.2d 825 (1964); State v. McNamara, 252 Iowa 19, 104 N.W.2d 568 (1960); State v. Lowry, 163 Kan. 622, 185 P.2d 147 (1947); State v. Fields, 434 S.W.2d 507 (Mo. 1968); State v. McDavitt, 62 N.J. 36, 297 A.2d 849 (1972); State v. Lucero, 526 P.2d 1091 (N.M. 1974); State v. Bennett, 521 P.2d 31 (Ore. App. 1974); State v. Jenkins, 523 P.2d 1232 (Utah 1974); State v. Stanislawski, 62 Wis. 2d 730, 216 N.W.2d 8 (1974); cf. Jones v. State, 527 P.2d 169 (Okla. Crim. App. 1974); State v. Ross, 7 Wash. App. 62, 497 P.2d 1343 (1972). But see Stone v. Earp, 331 Mich. 606, 50 N.W.2d 172 (1951).

As a practical matter, the practitioner should first have his client privately tested before making any decision as to whether to enter into a stipulation. Many attorneys have later regretted believing their client's false protestations of innocence after entering into an irrevocable stipulation.

An example of an acceptable stipulation is set forth in *State v. Towns*, 35 Ohio App. 2d 237, 243-44, 301 N.E.2d 700, 705-06 (1973): "It is hereby agreed by and between counsel for the State of Ohio and counsel for the defendant ... and by and between the aforementioned parties and the defendant, Joseph L. Towns, himself, that the defendant will submit to a 'Polygraph Test' or tests, the subject matter being the homicide of John Butler and robbery of Sandy's Drive-In Restaurant which occurred December the Tenth of Nineteen Hundred and Seventy-One at the location of 850 Mt. Vernon Avenue in the City of Columbus, State of Ohio, to determine any knowledge or complicity of the aforementioned offenses. The 'Polygraph Test or Tests' to be administered by a person or persons duly qualified to administer such test(s) and acknowledged by all parties to this agreement to be qualified to administer this test or these tests and to testify at trial of this cause as an 'expert' or as 'experts' regarding all aspects of the test(s) as given.

"It is further agreed among all parties that the 'results' of the polygraph test(s) or examination(s), including the complete testimony of the person administering same to the defendant, shall be offered and received as evidence in the trial of this cause without objection of any kind by any party to this agreement. It is understood that the defendant has been fully advised of his rights under the Ohio and United States Constitutions prior to his agreeing to submit to such test(s) and knowingly and intelligently waives his right to remain silent and his right to seek the advice of counsel during any stage of the administration of the polygraph test(s) or examination(s).

"It is further understood by all parties that upon signing this entry of stipulation of use of polygraph test(s) and results in evidence, all parties and their successors in interest (i.e., such other counsel as the State of Ohio or the defendant may retain or employ for any subsequent trial which may result through the investigation of the subject matter of this cause) shall be mutually bound to the terms of said entry and the refusal of any party to submit to any portion of said entry shall be subject to comment by the other parties at any subsequent trial of this cause.

"It is also understood that the place and date of examination(s) of the defendant will be arranged and designated by counsel for the State of Ohio. The 'expert' or 'experts' who will examine the defendant will be selected from the Columbus Police Department and will be designated by counsel for the State of Ohio."

For the past ten years in Orange County, California, the district attorney's office has had a standing policy that any defendant who wishes to take a polygraph test to prove his innocence may take such an examination if he first stipulates to its admissibility at trial. As a practical matter no trial has ever been held after the test, since a defendant will have his case dismissed if he passes, or will plead guilty if he fails. Under this system, one case of a defendant accused of robbery was dismissed after a polygraph examination established his innocence even though he was identified by 17 eyewitness to the robbery. See *People v. Cutler*, No. A176965 (Super. Ct. Los Angeles County, Cal. Nov. 6, 1972), 12 Crim. L. Rptr. 2133 (1972) (testimony of Fred Martin, former chief polygrapher, Orange County District Attorney's Office).

<sup>177</sup>Note, The Polygraphic Technique: A Selective Analysis, 20 DRAKE L. REV. 330, 341-42 n.109 (1971).

<sup>178</sup>Swift & Co. v. Hocking Valley Ry., 243 U.S. 281, 289 (1917).

<sup>179</sup>Los Angeles Ship Building & Drydock Corp. v. United States, 289 F.2d 222, 231 (9th Cir. 1961).

<sup>180</sup>Pulakis v. State, 476 P.2d 474, 479 (Alas. 1970).

<sup>181</sup>See id.; accord, State v. Trimble, 68 N.M. 406, 362 P.2d 788 (1961); Lewis v. State, 500 S.W.2d 167 (Tex. Crim. App. 1973); Romero v. State, 493 S.W.2d 206 (Tex. Crim. App. 1973). See also People v. Potts, 74 Ill. App. 2d 301, 220 N.E.2d 251 (1966) (holding that stipulation does not foreclose appellate review of admissibility and finding that there had been inadequate inquiry into the test conditions and the examiner's qualifications).

<sup>182</sup>91 Ariz. 274, 371 P.2d 894 (1962). The Valdez court adopted additional safeguards for introduction of the polygraph evidence upon written stipulation of the parties:

"(1) That the county attorney, defendant and his counsel all sign a written stipulation providing for defendant's submission to the test and for the subsequent admission at trial of the graphs and the examiner's opinion thereon on behalf of either defendant or the state. (2) That notwithstanding the stipulation the admissibility of the test results is subject to the discretion of the trial judge, i.e. if the trial judge is not convinced that the examiner is qualified or that the test was conducted under proper conditions he may refuse to accept such evidence. (3) That if the graphs and examiner's opinion are offered in evidence the opposing party shall have the right to cross-examine the examiner respecting: (a) the examiner's qualifications and training; (b) the conditions under which the test was administered; (c) the limitations of and possibilities for error in the technique of polygraphic interrogation; and (d) at the discretion of the trial judge, any other matter deemed pertinent to the inquiry. (4) That if such evidence is admitted the trial judge should instruct the jury that the examiner's testimony does not tend to prove or disprove any element of the crime . . . but at most tends only to indicate that at the time of the examination defendant was not telling the truth. Further, the jury members should be instructed that it is for them to determine what corroborative weight and effect such testimony should be given." Id. at 283-84, 371 P.2d at 900-01.

<sup>183</sup>See id.; State v. Stanislawski, 62 Wis. 2d 730, 216 N.W.2d 8 (1974) (finding of high accuracy of polygraph results was basis for abandoning 40-year old rule that polygraph evidence was inadmissible even upon stipulation by the parties); cf. State v. Ross, 7 Wash. App. 62, 497 P.2d 1343 (1972). But see Gaddis v. State, 63 Wis. 2d 120, 216 N.W.2d 527 (1974) (excluding evidence of a court-ordered examination because there was no stipulation by the parties).

<sup>184</sup>See, e.g., State v. Trotter, 110 Ariz. 61, 514 P.2d 1249 (1973) (error for court to fail to instruct, sua sponte, that the polygraph did not tend to prove or disprove any element of the crime charged, but at most only indicated whether at the time of the examination defendant was telling the truth).

<sup>185</sup>Note, The Polygraphic Technique: A Selective Analysis, 20 DRAKE L. REV. 330, 342 (1971). The courts are split on the issue of the enforceability of

a stipulation. In *Butler v. State*, 228 So. 2d 421 (Dist. Ct. App. Fla. 1969), and *State v. Davis*, 188 So. 2d 24 (Dist. Ct. App. Fla. 1966), enforcement of such an agreement between the prosecutor and the defendant was required. In both of these cases, it appears that the trial judge had approved the particular agreement involved. In *State v. Sanchell*, 191 Neb. 505, 216 N.W.2d 504 (1974), the court refused to enforce the agreement because of the absence of trial court approval. It is submitted that this latter case is incorrectly decided, and that agreements between prosecutor and defendant should be enforced in order to protect the integrity of the judicial system. The district attorney and the defendant should both be bound by the bargain into which they have entered. These three cases illustrate, however, the advisability of having the court participate in any stipulation agreement, or in having the agreement reduced to the form approved in *State v. Valdez*, 91 Ariz. 274, 283, 371 P.2d 894, 900 (1962). See note 182 *supra*.

<sup>186</sup>*United States v. DeBetham*, 348 F.Supp. 1377, 1385 (S.D.Cal. 1972); *Reid & Inbau*, *supra* note 28, at 4.

<sup>187</sup>See, e.g., S.B. 119 § 898.3 (1973), as amended in Assembly Aug. 19, 1974. For text of S.B. 119, see note 263 *infra*. See discussion in notes 276-79 & accompanying text *infra*.

<sup>188</sup>States which have passed legislation regulating polygraph examiners include Arkansas (ARK. STAT. ANN. §§71-2201 to -2225 (Supp. 1973)), Florida (FLA. STAT. ANN. §§ 493.40-.56 (1974-75 Supp.)), Georgia (GA. CODE ANN. §§ 84-5001 to -5016 (1970)), Illinois (ILL. STAT. ANN. ch. 38, §§ 202-1 to -30 (1973)), Kentucky (KY. REV. STAT. ANN. §§ 329.010-.990 (1972)), Mississippi (MISS. CODE ANN. §§73-29-1 to -47 (1972)), Nevada (NEV. REV. STAT. §§ 648.005-.210 (1973)), New Mexico (N.M. STAT. §§ 67-31A-1 to -11 (2d Repl. Vol. 10 1974)), North Dakota (N.D. CENT. CODE §§ 43-31-01 to -17 (Supp. 1973)), Texas (TEX. CIV. STAT. art. 4413 (29cc) (1974-75 Supp.)), and Virginia (VA. CODE §§ 54-729.01-.018 (1974 Repl. Vol. 7A)).

<sup>189</sup>See *United States v. DeBetham*, 348 F.Supp. 1377, 1388 (S.D.Cal. 1972), citing *Reid & Inbau*, *supra* note 28, at 257. See note 248 *infra*.

<sup>190</sup>361 F.Supp. 510 (D.Md. 1973).

<sup>191</sup>See, e.g., *Commonwealth v. A Juvenile*, 313 N.E.2d 120, 127 (Mass. 1974).

<sup>192</sup>*Bowen v. Eyman*, 324 F.Supp. 339, 341 (D.Ariz. 1970). For a thorough discussion of the application of relevant Fifth Amendment principles, see Note, *Problems Remaining for the "Generally Accepted" Polygraph*, 53 B.U.L. REV. 375, 390-400 (1973). Compare *Schmerber v. California*, 384 U.S. 757 (1966), and *Griffin v. California*, 380 U.S. 609 (1965), with *POLYGRAPH IN COURT*, *supra* note 35. See also *United States v. Ridling*, 350 F.Supp. 90, 97-98 (E.D.Mich. 1972); *People v. Adams*, No. M. 69424 (Alhambra Mun. Ct. Los Angeles County, Cal. May 14, 1974) at 12-13; *Commonwealth v. A Juvenile*, 313 N.E.2d 120, 127 (Mass. 1974) (before granting defendant's motion to permit polygraph examination, defendant must be informed of his constitutional rights and make voluntary, intelligent, and knowing waiver thereof).

<sup>193</sup>350 F.Supp. 90, 99 (E.D.Mich. 1972).

<sup>194</sup>*People v. Adams*, No. M69424 (Alhambra Mun. Ct. Los Angeles County, Cal. May 14, 1974) at 13.

<sup>195</sup>This problem was apparently overlooked in *Commonwealth v. A Juvenile*,



313 N.E.2d 120 (Mass. 1974). If the opinion is interpreted in light of its rather lengthy discussion of defendant's Fifth Amendment rights to imply that such a second examination cannot be constitutionally compelled, this would seem a serious limitation on the decision to encourage trial courts to utilize their discretion to admit polygraph evidence. However, it would appear that the omission by the court was not intended to preclude such a subsequent examination.

<sup>196</sup>United States v. Ridling, 350 F.Supp. 90, 97, 99 (E.D.Mich. 1972). This approach is also suggested in People v. Adams, No. M69424 (Alhambra Mun. Ct. Los Angeles County, Cal. May 14, 1974) at 13.

<sup>197</sup>See S.B. 119 § 898.4(a)-(b) (1973), as amended in Assembly Aug. 19, 1974. For the text of S.B. 119, see note 263 infra.

<sup>198</sup>179 F.Supp. 278 (S.D.N.Y.1959). <sup>199</sup>Id. at 280.

<sup>200</sup>See United States v. Parmen, 461 F.2d 1203 (D.C.Cir. 1971).

<sup>201</sup>United States v. Ridling, 350 F.Supp. 90, 99 (E.D.Mich. 1972).

<sup>202</sup>United States v. Urquidez, 356 F.Supp. 1363, 1367 (C.D.Cal. 1973). The Urquidez court conducted an extensive, and no doubt confusing, hearing to establish the "foundation" for reliability of the polygraph. See note 172 supra. Such a hearing was probably not necessary in the Ninth Circuit at the time. See note 203 & accompanying text infra.

<sup>203</sup>This is probably the situation at the present time in the Ninth Circuit, for example. See notes 155-61 & accompanying text supra.

<sup>204</sup>See POLYGRAPH IN COURT, supra note 35, at 68 (testimony of Leonard H. Harrelson).

<sup>205</sup>Hearings on the Use of Polygraphs and Similar Devices by Federal Agencies Before a Subcomm. of the House Comm. on Gov't Operations, 93d Cong., 2d Sess. 413 (1974) (testimony of Henry S. Dogin, deputy asst. attorney general) in 16 CRIM. L. RPTR. 2306, 2307 (1974).

<sup>206</sup>350 F.Supp. 685 (D.D.C. 1972).

<sup>207</sup>Gustafson & Orne, Effects of Heightened Motivation on the Detection of Deception, 47 J. APPLIED PSYCH. 408-11 (1963). Orne established that subjects were sufficiently motivated to produce conclusive polygraph results when the only motivating factor was the examiner's suggestion that an intelligent subject could deceive the polygrapher. The motivations for a criminal defendant to avoid detection are much higher. There is the possibility of seeking dismissal of the charges if the subject is found to be truthful. Furthermore, a deceptive result presents the threat of loss of the subject's credibility in the eyes of his attorney and the possibility that he might resign from the case or urge his client to plead guilty.

<sup>208</sup>As part of his project at the University of Utah, under a grant from the National Institute of Law Enforcement and Criminal Justice (see note 241 infra), Dr. David Raskin analyzed over 200 examinations conducted by Ted Ponticelli, approximately half for defense attorneys without the knowledge of the prosecution, and the balance for the Costa Mesa police department. He produced the following data:

	Deceptive	Truthful	Inconclusive	Total
Defense	20 (20.4%)	76 (77.6%)	2 (2 %)	98
Police	21 (19.8%)	80 (75.5%)	5 (4.7%)	106

<sup>209</sup>361 F.Supp. 510 (D.Md. 1973).

<sup>210</sup>While Wilson does list several transcripts and articles which were read in the course of deciding the case (including the author's amicus brief in United States v. DeBetham, 348 F.Supp. 1377 (S.D.Cal. 1972) it cites none of these "authorities" for any of its specific criticisms of the polygraph. See 361 F.Supp. at 511.

<sup>211</sup>In People v. Adams, No. M69424 (Alhambra Mun. Ct. Los Angeles County, Cal. May 14, 1974), the trial court considered all the objections raised in Wilson, reaching a contrary result on each point. However, in an opinion designed to test the present state of the law in California, the court refused to admit the evidence. See text following note 69 supra.

<sup>212</sup>While it is true that a few individuals have estimated the accuracy of polygraphs as low as 70%, the overwhelming majority believe its accuracy is in excess of 85% with most of those estimating over 90%. See notes 58-82 & accompanying text supra.

<sup>213</sup>361 F.Supp. at 512-13.

<sup>214</sup>Barland & Raskin, An Experimental Study of Field Techniques in "Lie Detection," paper presented at the Society for Psychophysiological Research, St. Louis, Mo., Oct. 24, 1971, in POLYGRAPH IN COURT, supra note 35, addendum II, and quoted in United States v. DeBetham, 348 F.Supp. 1377, 1381 (S.D. Cal. 1972).

<sup>215</sup>See generally notes 58-82 & accompanying text supra.

<sup>216</sup>See notes 81-82 & accompanying text supra.

<sup>217</sup>See note 83 supra. <sup>218</sup>See notes 86-88 & accompanying text supra.

<sup>219</sup>361 F.Supp. at 512-13. A similar argument is raised in Commonwealth v. A Juvenile, 313 N.E.2d 120, 125 (Mass. 1974). See note 172 supra.

<sup>220</sup>POLYGRAPH IN COURT, supra note 35, at 64 (testimony of Claybourne Lowry, retired U.S. Army polygraph examiner). In fact, in the Mai Lai cases stemming from the Viet Nam war, polygraph charts from the field were simultaneously reproduced in Washington. Obviously, this procedure could only be undertaken if the charts themselves were susceptible of objective interpretation. In fact, both polygraphers in the field in Viet Nam and those in Washington reached extremely similar numerical results. Testimony of Ted Ponticelli, Case Review Officer (polygraph examiner and criminal investigator, Department of the Army), in People v. Cutler, No. A176965 (Super. Ct. Los Angeles County, Cal. Nov. 6, 1972), 12 CRIM. L. RPTR. 2133 (1972).

<sup>221</sup>See notes 76-77 & accompanying text supra.

<sup>222</sup>See notes 81-82 & accompanying text supra.

<sup>223</sup>Though the experts differ on the exact degree of accuracy, almost all authorities agree that it ranges from 85% to almost 99%. See notes 58-82 & accompanying text supra. See also POLYGRAPH IN COURT, supra note 35,

at 14 (testimony of Cleve Backster); id. at 45 (testimony of John Reid); id. at 70 (testimony of Leonard H. Harrelson, director of Keeler Institute, a major polygraph school).

<sup>224</sup>361 F.Supp. at 512-13; cf. Commonwealth v. A Juvenile, 313 N.E.2d 120, 125 (Mass. 1974) ("[T]he undisputed fact [is] that some persons can tell undetectable lies, e.g., pathological liars, emotionally unresponsive subjects who have rationalized their behavior . . .").

<sup>225</sup>See People v. Adams, No. M69424 (Alhambra Mun. Ct. Los Angeles County, Ca. May 14, 1974). "As to the physical condition of the examinee which may affect the test, the Court is satisfied that a trained, experienced operator can and will detect such conditions if they are sufficiently serious to materially affect the results of the test." Id. at 10.

<sup>226</sup>In a five year study by Reid and Inbau, less than 20% of those who were guilty even attempted to fool the polygraph. Barland & Raskin, supra note 34, at 458.

<sup>227</sup>The experienced polygrapher will readily observe "clues" which will indicate countermeasures are being attempted by the subject. People v. Adams, No. M69424 (Alhambra Mun. Ct. Los Angeles County, Cal. May 14, 1974), at 8, 10-11; Barland & Raskin, supra note 34, at 458.

<sup>228</sup>See Barland & Raskin, supra note 34, at 427, 458-70. See also POLYGRAPH IN COURT, supra note 35, at 11 (testimony of Cleve Backster):

[Q:] "To what extent are there methods that an individual might take to deceive an examiner, and I suppose the instrument although that would appear to be inappropriate, but to deceive an examiner into thinking that there were no responses when, in fact, deception was being attempted? Would drugs or any kind of conditioning operate to deceive an experienced and qualified examiner in your opinion?"

[A:] "I might mention that there are a lot of rumors that are passed around as to how you can beat the polygraph . . . [T]he person, in order to adequately fool a polygraph examiner would have to prevent an oncoming reaction. And frankly I've been in this field and as I say for well over 20 years and I, myself, could not "beat" the polygraph. So, I don't worry about this. This has never been an actual problem; it's only been a theoretical problem. There are safeguards that can be put into the polygraph technique. For instance, anything that would cause the person not to react properly would eliminate the reaction on the control question as well as the relevant question. Now, if we do not see a capability of reaction during the actual polygraph examination, let's say within one or two questions on each side of the relevant question, where we can actually compare the lack of reaction on the relevant question to a presence of, on the control question, on one side or the other, we would come to no conclusions whatsoever. We would say that temporarily that person was not a fit subject for examining and continue the examining at a later time. So, the person has not at all beat the examiner in anyway. He has merely prolonged the examination procedure." See also id. at 69 (testimony of Leonard Harrelson, polygraph examiner).

<sup>229</sup>See Barland & Raskin, supra note 34, at 459 (study by Moore; study by Kubis).

<sup>230</sup>United States v. DeBetham, 348 F.Supp. 1377, 1387 n.38 (S.D.Cal. 1972). See also POLYGRAPH IN COURT, supra note 35, at 9 (testimony of Cleve Backster).

<sup>231</sup>See Barland & Raskin, supra note 34, at 467-68; POLYGRAPH IN COURT, supra note 35, at 6 (testimony of Cleve Backster): "[A]lthough a person may ordinarily think that they can consciously control the breathing, any attempt to force a breathing pattern is recognizable by a trained polygraph examiner and the breathing pattern involves very dramatic suppressions and then compensations for the loss of oxygen during this suppressed period when the person was under the localized emotional stress of a question that was bothersome to him. So, these suppressions ... form a very readable pattern..."

<sup>232</sup>See Barland & Raskin, supra note 34, at 465-66 (study by Moore (won't affect). Contra, earlier study by Kubis).

<sup>233</sup>Id. at 466-67.

<sup>234</sup>Id. at 460-61 (study by Moore (no effect). Contra, earlier study of Kubis (significant effect)).

<sup>235</sup>Id. at 461. <sup>236</sup>See id. at 456-57.

<sup>237</sup>See POLYGRAPH IN COURT, supra note 35, at 56 (testimony of Lemoyne Snyder, a polygraph expert and a medical-legal consultant with a law degree, and a medical degree from Harvard University): "[N]ow, all the time that I was with the State Police in Michigan, and we were running people every day ... I don't recall of a single case of an innocent person being labeled as guilty. A few cases of guilty persons who were labeled as innocent. Of course, that is accounted for by the fact that some people just have such low key reactions that there just isn't enough of a variation on their chart to draw anything, it's too even all the way through [so that there couldn't be sufficient reaction to even be able to reach a conclusion]."

<sup>238</sup>Reid & Inbau, supra note 28, at 184. See also POLYGRAPH IN COURT, supra note 35, at 60-61 (testimony of Claybourne Lowry).

<sup>239</sup>Barland & Raskin, supra note 34, at 469 (studies by Klump). See also POLYGRAPH IN COURT, supra note 35, at 11-12 (testimony of Cleve Backster):

[Q:] "If drugs of some kind were ingested which could, and there are such drugs, interfere with the pulse beat or the blood pressure or the rate of oxygenation, how would the examiner know that the person was under the influence of these drugs and therefore not suitable for an examination?"

[A:] "Actually, again, unless the person was under the effect of some type of drug to the point where it was extremely obvious from external senses, I don't look at it as being a very significant problem ... [I]f anything it was putting them in a better state for the polygraph examination. We've had people that have tried to use stimulants but all that does is exaggerate the size of the present reaction that would exist anyway and it just is no problem."

<sup>240</sup>See POLYGRAPH IN COURT, supra note 35, at 12 (testimony of Cleve Backster):

[Q:] "Now, with reference to various kinds of individuals, and I refer now to mental condition, supposing a sociopath or a person who congenitally has a low level of social concern, in other words, really doesn't care or feel badly about what he's done, even though it's criminal, supposing he encounters a polygraph examination, is there any reason to believe that because of his state of mind, that he would not respond in a fashion that would enable you to diagnose deception?"

[A:] "I think this gets into the situation of the very basis upon which the polygraph successfully operates. In other words, if we must rely on making a person remorseful or let's say feel ashamed for what they have done, I think the polygraph wouldn't have gotten off home base. In other words, we are not relying at all on the repentance of the individual or the shame for that which has occurred ... So, the idea of the person feeling justified or rationalizing in any way is not allowed to interfere with the deceptional nature of the technique."

<sup>241</sup>In an experiment conducted with prison inmates in British Columbia, Dr. Raskin obtained 95.5% correct identification of truthful and deceptive subjects in a mock-crime situation even though half of the subjects had been clinically diagnosed as psychopaths. Not a single guilty psychopath succeeded in deceiving the examiner. This data involves a completed portion of a larger study being conducted by Dr. Raskin under a grant from the National Institute of Law Enforcement and Criminal Justice. Personal communication with Dr. Raskin, January 1975.

<sup>242</sup>361 F.Supp. at 513.

<sup>243</sup>United States v. DeBetham, 348 F.Supp. 1377, 1388 (S.D.Cal. 1972).

<sup>244</sup>Id. See also, e.g., People v. Adams, No. M69424 (Alhambra Mun. Ct. Los Angeles County, Cal. May 14, 1974) at 9.

<sup>245</sup>313 N.E.2d 120, 126 (Mass. 1974). <sup>246</sup>See note 188 supra.

<sup>247</sup>361 F.Supp. at 513. See also notes 276-79 & accompanying text infra.

<sup>248</sup>E.g., United States v. DeBetham, 348 F.Supp. 1377, 1386 (S.D.Cal. 1972), quoting Reid & Inbau, supra note 28, at 257: "Before permitting the results to be admitted as evidence in any case, however, the courts should require the following: (1) That the examiner possesses a college degree. (2) That he has received at least 6 months of internship training under an experienced, competent examiner or examiners with a sufficient volume of case work to afford frequent supervised testing in actual case situations. (3) That the witness have at least 5 years' experience as a specialist in the field of polygraph examinations." This same list is cited as an example in Commonwealth v. A Juvenile, 313 N.E.2d 120, 126 n.6 (Mass. 1974), though the court therein did "not think it wise at this time to limit the trial judge's discretion on matters of expert testimony by formulating strict minimum standards as prerequisites to qualification of polygraph experts." Id. See also People v. Adams, No. M69424 (Alhambra Mun. Ct. Los Angeles County, Cal. May 14, 1974) at 8-9.

The DeBetham court suggested cross-examination "upon the particular examiner's testing technique and reputation for competence and integrity." 348 F.Supp. at 1386; cf. United States v. Zeiger, 350 F.Supp. 685, 690 (D. D.C. 1972) (court did not hesitate to examine the witness's qualifications which were held to be sufficient even though he lacked a college degree).

Stringent national standards have been developed at the major polygraph schools. See, e.g., POLYGRAPH IN COURT, supra note 35, at 13-14 (testimony of Cleve Backster on standards at military polygraphy school at Fort Gordon).

<sup>249</sup>See United States v. Ridling, 350 F.Supp. 90, 96 (E.D.Mich. 1972). See notes 276-79 & accompanying text infra.

<sup>250</sup>See notes 176-89 & accompanying text supra.

<sup>251</sup>It is interesting to note that expert testimony regarding voice prints was admitted in California cases when the only standards for an examiner were proposed by a group consisting of less than a half-dozen out of thousands of acoustics experts. Even these standards were not met by Lt. Nash, the prosecutor's examiner in most of the cases. See, e.g., People v. Lawton, No. CR-9485 (Riverside Super. Ct. San Bernardino County, Cal. 1973) (testimony of Dr. Tosi and Lt. Nash); People v. Law, 40 Cal. App. 3d 69 (1974); Hodo v. Superior Court, 30 Cal. App. 3d 778, 106 Cal. Rptr. 547 (1973).

<sup>252</sup>361 F.Supp. at 513. The Wilson court also noted that the polygraph result may go to the "ultimate issue." Id. at 511. However, this is hardly different from when a handwriting expert testifies in a forgery case or radar is used in a speeding case. Moreover, fears about "usurping" the function of the jury obviously do not arise in non-jury situations, such as motions to suppress (e.g., People v. Cutler, No. A176965 (Super. Ct. Los Angeles County, Cal. Nov. 6, 1972), 12 Crim. L. Rptr. 2133 (1972)); trials to the court (e.g., United States v. DeBetham, 348 F.Supp. 1377 (S.D.Cal. 1972)); or sentencing hearings (e.g., State v. Watson, 115 N.J. Super. 213, 278 A.2d 543 (1971)). In any event, both CAL. EVID. CODE § 805 (West 1966) and the new Federal Rule 704 (reproduced in 43 U.S.L.W.137, 141 (Jan. 14, 1975)) permit an expert to give an opinion even though it goes to the ultimate issue.

<sup>253</sup>See, e.g., United States v. Ridling, 350 F.Supp. 90 (E.D. Mich. 1972); State v. Valdez, 91 Ariz. 274, 371 P.2d 894 (1962).

<sup>254</sup>See notes 58-60, 76-82, 214-23 & accompanying text supra.

<sup>255</sup>See, e.g., Commonwealth v. A Juvenile, 313 N.E.2d 120, 129 (Mass. 1974); State v. Alderete, 86 N.M. 176, 521 P.2d 138, 142 (1974) (Lopez, J., concurring); POLYGRAPH IN COURT, supra note 35, at 48 (testimony of John Reid); id. at 62 (testimony of Claybourne Lowry); id. at 79 (testimony of Robert A. Brisentine).

<sup>256</sup>See POLYGRAPH IN COURT, supra note 35, at 44 (testimony of John Reid). Mr. Reid testified that cross-examination could expose any deficiencies in either the polygraph examination or examiner, and that the relevant information available in the literature would provide an adequate basis for such a challenge, as would the testimony of any one of "a great number of the different men that are prominent in the field." See also id. at 64 (testimony of Claybourne Lowry). According to Mr. Lowry, there is probably less than a one-half of 1% chance that an examiner's error could go undetected.

It is arguable, however, that the function of the jury could be "usurped" if polygraph testimony was permitted when the defendant did not take the stand. In contrast to its use as corroborating or impeaching testimony, the admission of such evidence when a defendant chooses not to testify would be "a substitute for direct testimony [and] would take away any opportunity for a cross-examination or for the jury to observe the demeanor and manner of testifying of the witness." State v. Nemoir, 62 Wis. 2d 206, 215, 214 N.W.2d 297, 301-02 (1974) (improper to consider admitting polygraph testimony if there is no offer of proof that defendant intends to take the stand); accord, S.B. 119 § 898.4(c) (1973), as amended in Assembly Aug. 19, 1974 (polygraph only admissible if examined party testifies). For the text of S.B. 119, see note 263 infra.

<sup>257</sup>Commonwealth v. A Juvenile, 313 N.E.2d 120, 127 (Mass. 1974).

<sup>258</sup>Brief for Defendant at 39, Commonwealth v. Fatalo, 346 Mass. 266, 191 N.E.2d 479 (1963); accord, Transcript of Evidentiary Hearing at 32, People v. Lazaros, CR-6237 (Oakland County, Mich. Cir. June 23, 1970); see, e.g., State v. Jenkins, 523 P.2d 1232 (Utah 1974) (polygraph evidence of innocence, but jury found defendant guilty).

John Reid, polygraph examiner, has testified: "I think the juries are quite sophisticated, from my experience with juries over the years. I think that it is a system that if they had some definite prejudice going into the jury room, I am sure it would be dismissed and handled pretty easily. I am quite sure that this would not be an over-influence on the jury." Testimony of John Reid at evidentiary hearing in People v. Lazaros, CR-6237 (Oakland County, Mich. Cir. June 23, 1970). See also People v. Adams, No. M69424 (Alhambra Mun. Ct. Los Angeles County, Cal. May 14, 1974) at 13-14.

<sup>259</sup>CR-79-179-LC (D. Mass. June, 1973).

<sup>260</sup>A summary of the responses was published in Barnett, How Does a Jury View Polygraph Results?, 2:4 POLYGRAPH 275 (1972).

<sup>261</sup>Id. at 276-77 (emphasis added). It seems important to note that the jurors put no unusual weight on the polygraph; in fact, it seems to have been given even less weight than other evidence even though they were impressed with the foundation testimony and "convinced that the polygraph [would] ... verify the truthfulness of a response ..." Id.

<sup>262</sup>D-San Mateo, California. The author collaborated extensively with Senator Gregorio in drafting the original bill and its revisions.

<sup>263</sup>The version of the bill as amended in the Assembly August 19, 1974 is included herein in its entirety:

"PROPOSED TEXT OF S.B. 119

"Section 1. Chapter 3 (commencing with Section 898.1) is added to Division 7 of the Evidence Code to read:

"Chapter 3. Polygraph Examinations

"898.1 As used in this chapter:

"(a) 'Polygraph examination' or 'examination' means the testing or questioning of individuals and the simultaneous recordation thereof, by means of any instrument or device of any type which is capable of measuring and permanently recording at least these physiological phenomena: (1) cardiovascular reactions, (2) respiratory pattern, and (3) the galvanic skin response, for the purpose of diagnosing truth or deception.

"(b) 'Polygraph' means any instrument or device referred to in subdivision (a).

"(c) 'Examiner' means any person who operates a polygraph.

"(d) 'Examinee' means any person who submits to a polygraph examination.

"(e) 'Testing phase' means the time during which the polygraph is in operation.

"(f) 'Results' means the opinion of the examiner based upon auditory and visual recordings made during the polygraph examination.

"898.2 The results of polygraph examinations administered by examiners qualified pursuant to Section 898.3 are admissible in all civil proceedings in courts of record upon the conditions set forth in this chapter, provided, that any such examination shall have been authorized or required by a court

order which was issued not later than two years after the panel commences to qualify examiners under Section 898.3.

"898.3 Not later than December 31, 1975, the Judicial Council shall by rule establish procedures and standards which shall provide for the qualification of examiners by a panel of five members, four of whom shall be trial court judges or former trial court judges appointed by the Judicial Council and one of whom shall be an attorney appointed by the State Bar of California.

"It is the intent of the Legislature that examiners qualified under this section shall be of the very highest professional competence and integrity.

"898.4 (a) Except as provided in this chapter, the results of a polygraph examination shall be admissible under this chapter only if the court, upon the motion of the party who intends to introduce such results, issues an order permitting the examination. In addition to any other requirements imposed by law, the notice of such motion shall include a statement of the facts at issue upon which the examinee shall be examined, the name of the examinee, the name and business address of the examiner, the time and address of the examination, and shall further set forth the questions to be propounded to the examinee. The moving party shall make a showing that admission of polygraph results is necessary to assist the trier of fact in evaluating the veracity of a party or witness with respect to an essential fact at issue in the proceeding. Upon the motion of any party, and for good cause, the court may order the modification or deletion of questions to be propounded to the examinee. Except as provided in subdivision (b), the results of a polygraph examination shall be admissible under this chapter only upon a finding by the court that the examinee voluntarily submitted to the examination.

"(b) The court, upon the motion of any party, shall issue an order requiring that any party or witness undergoing an examination authorized by an order issued pursuant to subdivision (a) shall, as a condition to the admission into evidence of the results, submit to an examination administered by another examiner mutually agreed upon by the parties or, in the absence of such agreement, appointed by the court. The subject matter of such examination shall be substantially the same as the subject matter of the examination authorized pursuant to subdivision (a). Upon the motion of any party the court may further order that, as a condition to the admission into evidence of the results of any examination conducted pursuant to subdivision (a), the results of any other examination of the examinee or substantially the same subject matter by an examiner qualified under Section 898.3 shall also be admitted into evidence.

"(c) The results of an examination authorized pursuant to this chapter shall not be admissible unless testimony of the examinee has been admitted in the proceeding on the subject matter of such examination.

"(d) Polygraph examinations authorized or required by the court shall take place not less than seven days after the order is issued. The results of a polygraph examination shall not be admitted into evidence less than 20 days after the date of examination. Upon the motion of any party and for good cause, the court may order the reduction of the minimum time periods set forth in this subdivision.

"(e) Each question by the examiner and each answer by the examinee during the testing phase of the polygraph examination shall be electronically recorded.

"898.5 The court in its discretion may exclude the results of a polygraph examination or the content of the control question, as that term is customarily defined in the polygraph profession, and the answer thereto, if their probative value is substantially outweighed by the probability that their admission will (a) necessitate undue consumption of time, or (b) create



substantial danger of undue prejudice, of confusing the issues, or of misleading the jury.

"898.6 This chapter shall not prohibit or otherwise apply to the admission into evidence of the results of a polygraph examination pursuant to a stipulation by the parties, including a stipulation made by a party prior to submitting to an examination, that the result shall be admissible.

"898.7 Neither the court nor any party shall have the right to comment on the failure of another party or witness to submit to a polygraph examination or to introduce the results.

"898.8 All other provisions of this code not inconsistent with the provisions of this chapter shall apply to the introduction of results of polygraph examinations into evidence under this chapter."

<sup>264</sup>Upon request of the Board of Governors of the State Bar of California at its September 1973 meeting, a committee was selected to submit a report on the use of polygraph evidence in civil trials and to present a position as to California S.B. 119. After several meetings and the assimilation of a great deal of evidence and material, the committee submitted a highly favorable report on January 2, 1974; however, for still unexplained reasons, the Board of Governors did not release the report, but instead sent it back to the committee.

<sup>265</sup>See notes 151-73 & accompanying text supra.

<sup>266</sup>Some have also argued, with force, that the polygraph is a "great leveller," whereby the poor, inarticulate party can content with a wealthy, educated opponent. Hearings on Cal. S.B. 119 Before the Senate Committee on the Judiciary (testimony of Fred Barnett, Esq.) (March 27, 1973).

<sup>267</sup>See notes 1-27 & accompanying text supra.

<sup>268</sup>S.B. 119 §898.4(a) (1973), as amended in Assembly Aug. 19, 1974; cf. Commonwealth v. A Juvenile, 313 N.E.2d 120, 127 (Mass. 1974). See also notes 191-97 & accompanying text supra.

<sup>269</sup>See S.B. 119 §898.4(c), supra note 263. <sup>270</sup>See id. § 898.7.

<sup>271</sup>See note 162 supra. <sup>272</sup>See notes 242-51 & accompanying text supra.

<sup>273</sup>See S.B. 119 § 898.4(b), supra note 263.

<sup>274</sup>Id. §898.5. The court is given discretion to eliminate or restrict polygraph evidence whenever its probative value is outweighed by either undue consumption of time or danger of undue prejudice, confusion, or misleading of the jury. In the case where the two experts disagree, the polygraph will arguably no longer be an "aid" to the jury, but rather will involve a lengthy and collateral battle of the experts. In such circumstances the court should exercise its discretion to exclude the evidence. Cf. CAL. EVID. CODE § 352 (West 1966).

This approach in S.B. 119 providing clear standards and parameters for the exercise of judicial discretion should be contrasted with the current approach adopted by the United States Court of Appeals in the Ninth Circuit where standardless "discretion" is becoming a synonym for exclusion at the whim of the trial court. See notes 163-66 & accompanying text supra.

<sup>275</sup>As a result of the concern with the qualifications of experts, the version of the bill which passed the senate did set extremely stringent standards which the court was to apply in assessing the qualifications of polygraph experts. S.B. 119 § 898.6 (1973), as amended in Senate May 7, 1973.

Under this version not only did the expert have to meet extensive "minimum" standards including 250 hours of academic class instruction, 100 hours of directed practical exercises in polygraph technique and the administration of 300 actual examinations, but the clear intent of the statute was to select only the most qualified from among those who meet these standards. See id., "The intention of the Legislature is that the examiners qualified under this section shall have been found by the court to have attained the very highest professional competence, and shall have been found to meet the following absolute minimum standards . . . ." Id. §898.6(b) (emphasis added). "It is the further intention of the Legislature that in considering whether an examiner may be qualified as an expert witness, the court shall consider that only a small portion of the examiners meeting the above absolute minimum standards ... are of the very highest professional competence." Id. § 898.6(c) (emphasis added).

Aside from problems of undue consumption of time and lack of uniformity in this approach, discussed above, any minimum standards should require an apprenticeship program under which the polygrapher is tested to assure that not only has he or she administered "300 polygraph examinations" but that they have been properly conducted. Reid & Inbau, supra note 28, at 257.

<sup>276</sup>See S.B. 119 § 898.3, supra note 263.

<sup>277</sup>Drawing the panel from attorneys and judges rather than members of the California Association of Polygraph Examiners avoids what would be a de facto "Grandfather Clause." Under no circumstances, whether by provision or practice, should the quality of approved examiners be diluted by such a "Grandfather Clause."

<sup>278</sup>See S.B. 119 §898.3, supra note 263. In addition, the council is empowered to delineate those issues and types of proceedings in respect to which, in the interest of justice, polygraph examinations will not be admissible. S.B. 119 §898.3(b), as amended in Assembly May 15, 1974; this provision was deleted from the version of the bill that appears in note 263 supra. Although this task is clearly more manageable than compiling a list of those issues and proceedings in which polygraph evidence is admissible, it is nevertheless difficult to imagine any specific matters or proceedings as to which such evidence should be uniformly banned. Most likely, such a power (if restored to the bill) would be applied exactly as §898.5, setting general standards of probative value versus prejudicial harm, rather than prohibiting polygraph evidence as to specified issues or proceedings.

<sup>279</sup>See id. §898.3.

<sup>280</sup>One aspect of the proposed redraft which may be confusing is the apparent requirement that the party proposing the introduction of a polygraph examination must show that it is "necessary" to assist the trier of fact. Id. § 898.4(a).

<sup>281</sup>As with other evidence, however, the drafters intended only that the polygraph evidence be "helpful" or "probative." Unfortunately, they clouded this intent by the selection of the word "necessary," which as far as this author knows, has no clearly understood meaning or application in the law of evidence.

<sup>282</sup>2 J. Wigmore, A TREATISE ON THE ANGLO-AMERICAN SYSTEM OF EVIDENCE IN TRIALS AT COMMON LAW § 875 (2d ed. 1923).

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## CALIBRATING THE POLYGRAPH, A PROGRAMMED TEXT

### The Galvanograph (Part II)

By

Clark J. Tebbs

This linear program of instruction will be used to teach you how to calibrate the systems within the polygraph instrument, particularly Stoelting AN/USS-2D and 2F.

1. Read each page carefully. Do not skim over the reading material with the goal of finishing quickly, for this may cause you to miss vital information.
2. Be alert for prompts and cues which will assist you in answering questions or statements in the program. Prompts are key words which are underlined or CAPITALIZED. Cues are hints to help you select right answers.
3. After reading each step, write your answer in the blank space or spaces provided. The correct answer will be found on the next page. If you answer correctly, go to the following page and follow the same procedure. If your answer to any step is different from the correct one on the next page, reread the step and write the correct answer; then go to the next page.

Turn to the next page and begin the program with Step 1.

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This program of instruction was prepared by WO1 Clark J. Tebbs, Instructor, DALET, Polygraph Committee, U.S. Army Military Police School, Fort Gordon, Georgia, for the polygraph student as an aid to improve his ability to properly calibrate all components within the AN/USS-2D and 2F polygraph instruments.

### GALVANOGRAPH COMPONENT

This portion of the programmed instruction will develop your skill in performing the galvanic skin response (GSR) calibration procedure in the AN/USS-2D polygraph instrument. (NOTE: If using the AN/USS-2F instrument, refer to Part V of this series of articles). Using the polygraph instrument and this program of instruction, you will calibrate the GSR system to the satisfaction of a certified polygraph examiner within 20 minutes.

Prior to beginning the calibration, insure that all controls on the polygraph instrument are in the NEUTRAL position. This is necessary because the instrument can be damaged if the controls are not properly set before placing it into operation.

1. Prior to starting a calibration check of any component within the polygraph instrument, you should first \_\_\_\_\_ all of the controls.

Compare your response to the CORRECT one on the next page.

Answer to 1:

NEUTRALIZE

2. The controls for the GSR amplifier are the SENSITIVITY control, the PEN CENTERING control and the AUTOMATIC/MANUAL Switch. These controls are neutralized by turning sensitivity to zero, or fully counterclockwise, turning the pen centering control fully counterclockwise, and the automatic/manual switch to manual.

The sensitivity control is neutralized by turning it to \_\_\_\_\_ or fully \_\_\_\_\_.

Answer to 2:

ZERO

COUNTERCLOCKWISE

3. The PEN CENTERING control and the automatic/manual switch for the GSR component are neutralized by turning the pen centering control fully counter-clockwise and placing the automatic/manual switch in the manual position.

The GSR pen centering control is neutralized by turning it fully \_\_\_\_\_.

Answer to 3:

COUNTERCLOCKWISE

4. The sensitivity control and the automatic/manual switch on the GSR amplifier are neutralized by turning the sensitivity control to zero or fully counterclockwise, and placing the automatic/manual switch in the MANUAL position.

The automatic/manual switch is neutralized by placing it in the \_\_\_\_\_ position.

Answer to 4:

MANUAL

5. To perform a calibration check of a system within the polygraph instrument, the appropriate and related components must be properly attached to the instrument. The related component necessary to perform a GSR calibration are the finger electrode assembly and the GSR checking fixture.

To calibrate the GSR component, you must first attach the finger electrode assembly to the \_\_\_\_\_ and to the GSR \_\_\_\_\_.



Answer to 5:

INSTRUMENT

CHECKING FIXTURE

6. With the instrument controls in the neutral position, note that in reference to the GSR amplifier the AC power switch is in the OFF position. With NO power applied to the polygraph instrument, check the mechanical position of the GSR pen to insure that it is resting on the center base line. If not, it may be necessary to bend the pen or pen cradle slightly. If this adjustment is necessary, notify your instructor and he will assist you.

With the AC power switch OFF, the GSR pen should be resting on the center base line. This will establish a \_\_\_\_\_ zero reference point for the recording pen prior to starting the GSR calibration check.

Answer to 6:

MECHANICAL

7. Because of the electron tubes that are a part of the GSR amplifier on the 2-D instrument, a warm up period of 7 to 10 minutes is required prior to checking any GSR responses. Power is supplied to the GSR amplifier by turning on the AC power switch located on the instrument.

Prior to obtaining proper GSR responses from the GSR amplifier, AC power should be applied to the amplifier for a period of \_\_\_\_ to \_\_\_\_ minutes which will allow the amplifier to properly \_\_\_\_\_ before going into operation.

Answer to 7:

SEVEN (7), TEN (10)

WARM UP

8. Apply power to the GSR amplifier by turning on the AC power switch and allow the amplifier to warm up for a period of 7 to 10 minutes. Insure that all amplifier controls are in the NEUTRAL position and that the GSR pen, after being properly balanced, is resting within one-quarter of an inch on the center base line.

AC power must be supplied to the amplifier for a period of 7 to 10 minutes in order to provide a sufficient warm up period before the position of the GSR pen will stabilize. After the amplifier is warmed up, insure that the amplifier controls are in the \_\_\_\_\_ position; then check to insure that the GSR pen is resting within one-quarter of an inch on the center base line.

Answer to 8:

NEUTRAL

9. You are now ready to attached the finger electrode assembly into the jacks of the GSR CHECKING FIXTURE. The checking fixture contains a known amount of resistance that will give a specific GSR response when properly applied.

When calibrating the GSR amplifier, you use the GSR \_\_\_\_\_ as a substitute for subject resistance.

Answer to 9:

CHECKING FIXTURE

10. With the GSR controls in the neutral position, the checking fixture attached, and the amplifier properly warmed up, the GSR pen should remain within  $\frac{1}{4}$  of an inch on the center base line indicating that the amplifier is properly BALANCED.

If the pen is not within  $\frac{1}{4}$  of an inch from the center base line, then you must perform a \_\_\_\_\_ adjustment by adjusting R-23 within the amplifier assembly. If this adjustment is required, notify your instructor who will assist you in making this adjustment.

Answer to 10:

BALANCE

11. Now that the amplifier is properly BALANCED, slowly turn the SENSITIVITY Control clockwise to a maximum position and note that the GSR pen falls to the bottom pen stop. Readjust the pen centering control until the pen rises to the upper pen stop. This allows full observation of the GSR pen travel. The GSR pen travel is checked by turning the pen centering control, causing the pen to go from the lower \_\_\_\_\_ to the upper pen stop.

Answer to 11:

PEN STOP

12. The GSR pen travel limiting screws are properly adjusted when the upper and lower limits of the pen travel are within  $\frac{1}{4}$  of an inch of the respective upper and lower edges of the chart paper. If this tolerance is not met, adjustment of the GSR pen travel \_\_\_\_\_ is required. NOTE: If this adjustment is needed, notify your instructor who will assist you in making this adjustment.

Answer to 12:

LIMITING SCREWS

13. With the SENSITIVITY control in the maximum position and the pen properly centered (using pen centering control), check the GSR sensitivity by changing the resistance a fixed amount in the checking fixture, using the slide switch or pip switch located on the checking fixture. NOTE: The GSR pen will deflect one inch when the resistance is changed. Observe the deflection for approximately 15 seconds to insure that it does not drift, indicating capacitor break down within the instrument.

If a one-inch deflection is not noted, this will require a \_\_\_\_\_ adjustment to be made by adjusting R-18 within the amplifier assembly. If an adjustment of R-18 is required, notify your instructor who will assist you.



Answer to 13:

SENSITIVITY

14. With the automatic/manual switch in the manual position, check to insure that the pen is centered on the base line; then place the automatic/manual switch in the automatic position. The pen should remain within  $\frac{1}{4}$  of an inch on the center base line. If the pen moves more than  $\frac{1}{4}$  of an inch, an adjustment of R-10, (chopper balance) is required. Automatic pen balance is proper when the pen does not move more than  $\frac{1}{4}$  of an inch when switching from manual to automatic.

When adjusting R-10, the automatic/manual switch should be in the \_\_\_\_\_ position. NOTE: When making this adjustment, it may be necessary to repeat several times. If this adjustment is necessary, notify your instructor who will assist you in making it.

Answer to 14:

AUTOMATIC

15. To check the automatic function of the GSR amplifier, place the automatic/manual switch in the automatic position; then using the checking fixture, create a change in resistance and observe the normal one-inch pen deflection occur. NOTE; however, that the pen will automatically return to within  $\frac{1}{4}$  of an inch of the center base line immediately after the response.

In the automatic mode of operation, the pen centering control has no effect on the position of the recording pen. The pen is positioned \_\_\_\_\_ on the center base line when in the automatic mode of operation.

Answer to 15:

AUTOMATICALLY

Notify your instructor at this time that you are ready to demonstrate the calibration procedure of the galvanograph system. He will monitor your ability to properly calibrate the galvanograph system by observing that you perform correctly each key item necessary, in proper sequence, according to the following checklist:

- a. Attach AC power cord to instrument and 110-volt electrical outlet. \_\_\_\_\_
- b. Attach finger electrode assembly to instrument, and plug into the GSR checking fixture. \_\_\_\_\_
- c. Insure that the auto/manual switch is in manual position. \_\_\_\_\_
- d. Turn sensitivity control to maximum clockwise position. \_\_\_\_\_
- e. Check pen travel. \_\_\_\_\_
- f. Center GSR pen on base line, using pen-centering control. \_\_\_\_\_
- g. Insure a one-inch upward pen deflection when switching the IK test switch on the checking fixture. \_\_\_\_\_
- h. Re-center pen on base line, and switch from manual to automatic, insuring that the pen remains within one-quarter of an inch on the base line. \_\_\_\_\_

This completes the calibration procedure for the GSR system of the polygraph instrument. You have checked all three adjustments within the GSR amplifier as follows and determined that the amplifier is functioning properly:

- (a) Proper GSR pen balance - R-23.
- (b) Proper GSR sensitivity - R-18.
- (c) Proper automatic function (chopper balance) - R-10.

Return all controls to the neutral position and disconnect the checking fixture from the instrument.

If your instructor is satisfied with your ability to perform the calibration check of the galvanograph system, you may continue with the program.

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# BIBLIOGRAPHY ON SCREENING OF POLICE APPLICANTS WITH THE POLYGRAPH

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Norman Ansley and Frank S. Horvath

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## POLYGRAPH REVIEW

By

Bobby J. Daily

How would you score on a licensing examination? Are you sufficiently up-to-date about such subjects as psychology, physiology, instrumentation, test question construction, chart interpretation, interview techniques, etc? Are you prepared to undergo direct and cross-examination on polygraph subjects in court? A score of 9 or 10 is excellent, 7 or 8 is good, and below 7 may indicate some review is warranted. The review in this issue is on psychology. (Answers are on page 290.)

1. A person's fears, anxieties and apprehensions are channeled toward the situation which holds greatest immediate threat to his self-preservation or general well being. This channeling of attention to a specific area or situation during polygraph testing is identified by Cleve Backster as:
  - a. general nervous tension.
  - b. perseverate set.
  - c. anxiety reaction.
  - d. psychological set.
2. A man killed his girlfriend when he discovered her in a compromising situation with another man. According to Reid and Inbau, an offender of this type is classified for interrogation as:
  - a. a psychopathic offender.
  - b. an emotional offender.
  - c. a circumstantial offender.
  - d. an introspective offender.
3. When an individual retreats to an earlier developmental level involving less mature responses, he is using the ego defense mechanism of:
  - a. sympathism.
  - b. sublimation.
  - c. regression.
  - d. repression.
4. The neurotic is NOT characterized by:
  - a. high anxiety.
  - b. a fair adjustment to daily living.
  - c. brain impairment.
  - d. feelings of foreboding and panic.
5. Symptoms such as illogical, absurd and changeable delusions with a persecutory and suspicious theme typify:
  - a. simple schizophrenia.
  - b. hebephrenia.
  - c. catatonia.
  - d. paranoid schizophrenia.

6. You are conducting a polygraph examination of a man who is suffering from a neurotic-anxiety reaction. You would expect his charts to:
  - a. contain many nervous responses.
  - b. be rather unresponsive.
  - c. contain no conclusive responses.
  - d. contain occasional violent responses.
7. A soldier you are to examine has frequently made formal complaints against other soldiers in his barracks. Investigations reveal most were minor or ill-founded, yet he continues to make them. During pre-test interview, the soldier tells you his sergeant is slowly poisoning him. You ask how he knows this and he says God told him. You suspect this soldier is suffering from:
  - a. hypochondriacal reaction.
  - b. schizophrenia, paranoid type.
  - c. neurosis.
  - d. psychopathic personality.
8. In the Backster Zone Comparison technique, the suppression or reduction of responses to relevant and control questions due to a strong outside issue is called:
  - a. psychological set.
  - b. anticlimax dampening effect.
  - c. super dampening effect.
  - d. guilt complex reaction.
9. Maslow set up a hierarchy of needs. Which one of the following needs the most basic?
  - a. Love.
  - b. Safety.
  - c. Esteem.
  - d. Hunger.
10. You are going to conduct a post-test interrogation of a deceptive, non-emotional offender. A good technique would be to:
  - a. tell him that anyone else under similar conditions or circumstances might have done the same thing.
  - b. seek an admission about some other offense.
  - c. sympathize with him.
  - d. rationalize the moral seriousness of the offense.

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## COCHRAN'S LAW DICTIONARY - A BOOK REVIEW

By

Thomas G. Beatty

Cochran's Law Dictionary (Criminal Justice Edition). Published by the W.H. Anderson Company, 646 Main St., Cincinnati, Ohio 45201, 1973. Revised by Wesley Gilmer, Jr. Price: \$5.00.

This is the 5th edition of Cochran's, the first publication being in 1888, the fourth in 1956. Its outstanding attribute is that it is a small paperback weighing a few ounces, while its contemporaries, like Black's Law Dictionary are hardbound and weigh several pounds. Cochran's also costs about a fifth as much.

This is not to say that Cochran's is as authoritative and complete as the higher-priced dictionaries. It lacks the definitions of many Latin phrases, and is weak in its coverage of many civil law terms. However, it is, after all, a criminal justice edition, and for the average person assaulted with confusing legal terminology, its definitions are concise, understandable, and accurate. For a lawyer, its definitions may be too short, without developing some of the subtleties which often inhere in legal terms. On the other hand, it assuredly should give him a working knowledge of the term, and he can carry it with him into court unlike a large hard-bound dictionary.

I highly recommend this book for non-lawyers who deal with the legal profession, and moderately recommend it for practicing attorneys.

\* \* \* \* \*

## UNDERSTANDING MEDICAL TERMINOLOGY - A BOOK REVIEW

By

Thomas G. Beatty

Understanding Medical Terminology, 5th edition by Sister Agnes Clare Frenay, S.S.M. Published in 1973 by the Catholic Hospital Association, 1438 S. Grand Blvd., St. Louis, Missouri 63104. Price: \$6.50.

This handbook is recommended by the publisher as being a valuable tool for occupational and professional groups such as trial lawyers and insurance adjusters. In actuality, however, I believe its utility is confined to those individuals whose initial understanding of physiological terminology is exceptional. For the average law enforcement professional or attorney, the materials in the book give rise to more questions than answers. For example, the definition of "keratocentesis" is "paracentesis of cornea", an altogether correct and sufficient definition if the reader understands the definition and knew enough to look in the chapter on vision in the first place.

My point is not to degrade the book, for it seems complete and authoritative, and each chapter is augmented by an extensive bibliography. Rather, I think that the book, which is resplendent with numerical tables such as one entitled, "Modified Schilling's Hemogram—Differential Leukocyte Count", is of limited utility in the law-related professions.

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#### UNDERCOVER INVESTIGATION - A BOOK REVIEW

By

Norman Ansley

J. Kirk Barefoot, Undercover Investigation. Springfield, Illinois: Charles C. Thomas, 1975, 87 pp., indexed, illus., biblio., \$10.50.

In the foreword by Dr. V. A. Leonard, the strength of the book is noted in the emphasis on the recruiting, personnel policy, training and career of the undercover agent. Dr. Leonard notes that the "author's mature experience in corporate security and his present position as Director of Corporate Loss Prevention for Cluett, Peabody & Company, Inc., in New York City place him in a commanding position to make this important contribution to the field." Polygraph examiners know J. Kirk Barefoot as past-President of the American Polygraph Association and a tireless worker in their profession.

What makes this book so different from most writing on the subject of undercover investigations is the organization of material, in a manner useful to a corporate executive or security training officer. It avoids the pitfall of thrilling cases that are rare and unrepresentative. It also has the merit of restraint. Many things that should be left unsaid, were left unsaid. The text is readable, clear, succinct. The case illustrations are appropriate, included to underscore important points.

The polygraph is not ignored in this work. Barefoot recommends the use of the polygraph before an undercover agent is employed and at the end of each assignment. If the polygraph may not be used, he suggests the use of the "Reid Report" test for honesty. As for employees who have engaged in theft, Barefoot states that the "only reliable method for evaluating an employee's degree of dishonesty is interrogation, based on information developed by the undercover agent, followed by a signed statement which is then verified by polygraph examination."

I am not aware of any other book that treats this subject from a management and training viewpoint. Like all books published by Charles C. Thomas, it is well bound, printed on the finest paper, well illustrated, and meant to last. I recommend this book as a text for training and a source book for those involved in the management of security operations, in commerce and government.

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## THE AUTONOMIC NERVOUS SYSTEM

### A Film Review

Produced by University College, London. Distributed by International Film Bureau, Inc., 332 South Michigan Avenue, Chicago, Illinois 60604, tel. (312) 427-4545. 16mm. sound, color, 17 minutes, rental \$12.50, sale \$235.00.

This is an educational film of the very best quality. The film follows a systematic approach to the explanation of the autonomic nervous system which is easy for the student to follow. Where possible, organs are photographed while functioning. The diagrams and cartooned portions are clear, the color photography is excellent, and the narrative superb.

This film is recommended for use in support of a lecture on the autonomic system, in basic polygraph training, or at refresher training in state association seminars. The film is brief, and may not be used alone. However, it is an excellent summary and would be best used at the end of a lecture on the ANS. The film is accompanied by an instructor's guide summarizing the functional, structural and operational differences of the sympathetic and parasympathetic systems.

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### ABSTRACTS

#### Skin Conductance and Heart Rate

J.M. Watts, "Anxiety and the Habituation of the Skin Conductance Response," Psychophysiology, 12:5, 596-601, September 1975.

The effect of threat of shock on the habituation of the skin conductance response (SCR) to a series of auditory stimuli was assessed. Skin resistance and heart rate were recorded during the presentation of 20, 1 second 1000 Hz tones in a control session and in a session at the end of which subjects were led to expect a painful electric shock. The effects of the threat of shock consisted of recovery of the SCR and an increase in skin conductance level and heart rate. They were restricted to the period during which subjects believed the shock to be imminent. Two possible reasons for the SCR recovery were offered, one in terms of Lader and Mathews' "maximal habituation" hypothesis and a second in terms of a change in the stimulus complex.

Requests for reprints should be addressed to J.M.J. Watts, University Department of Psychiatry, Royal Edinburgh Hospital, Morningside Park, Edinburgh, EH10 5HF, Scotland.

#### Skin Conductance, Heart Rate, and Breathing

Rafael Klorman, Alan R. Wiesenfeld, and Mary L. Austin, "Autonomic Responses to Affective Visual Stimuli," Psychophysiology, 12:5, 553-560, September 1975.

Thirty-two subjects were categorized by an objective questionnaire as high or low in fear of mutilation. These subjects viewed six slides each from three categories: neutral, incongruous, and mutilation. As predicted, fearful subject's cardiac responses to mutilation were acceleratory and their

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J.M. Watts, "Anxiety and the Habituation of the Skin Conductance Response," Psychophysiology, 12:5, 596-601, September 1975.

The effect of threat of shock on the habituation of the skin conductance response (SCR) to a series of auditory stimuli was assessed. Skin resistance and heart rate were recorded during the presentation of 20, 1 second 1000 Hz tones in a control session and in a session at the end of which subjects were led to expect a painful electric shock. The effects of the threat of shock consisted of recovery of the SCR and an increase in skin conductance level and heart rate. They were restricted to the period during which subjects believed the shock to be imminent. Two possible reasons for the SCR recovery were offered, one in terms of Lader and Mathews' "maximal habituation" hypothesis and a second in terms of a change in the stimulus complex.

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#### Skin Conductance, Heart Rate, and Breathing

Rafael Klorman, Alan R. Wiesenfeld, and Mary L. Austin, "Autonomic Responses to Affective Visual Stimuli," Psychophysiology, 12:5, 553-560, September 1975.

Thirty-two subjects were categorized by an objective questionnaire as high or low in fear of mutilation. These subjects viewed six slides each from three categories: neutral, incongruous, and mutilation. As predicted, fearful subject' cardiac responses to mutilation were acceleratory and their

counterparts' deceleratory. Both groups reacted to incongruous stimuli with heart rate deceleration. Unexpectedly, both samples displayed cardiac acceleration to the neutral category. Respiratory patterns of initial expiration characterized low-fear subjects whereas inspiration was typical in the high-fear group. However, respiratory activity did not vary over slide types. The high-fear sample emitted electrodermal responses of greater amplitude and slower recovery to mutilation slides than to the other categories. In both respects, the high-fear sample exceeded their counterparts. Finally, fearful subjects exhibited a more pronounced tendency to judge mutilation slides more aversive than incongruous or neutral materials. In general, responses to mutilation materials indicated reactions of defense in fearful subjects and orientation on low-fear persons.

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#### ANSWER KEY TO POLYGRAPH REVIEW ON PSYCHOLOGY:

1. d. Psychological set.
2. b. An emotional offender.
3. c. Regression.
4. c. Brain impairment.
5. d. Paranoid schizophrenia.
6. a. Contain many nervous responses.
7. b. Schizophrenia, paranoid type.
8. c. Super dampening effect.
9. d. Hunger.
10. b. Seek an admission about some other offense.

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